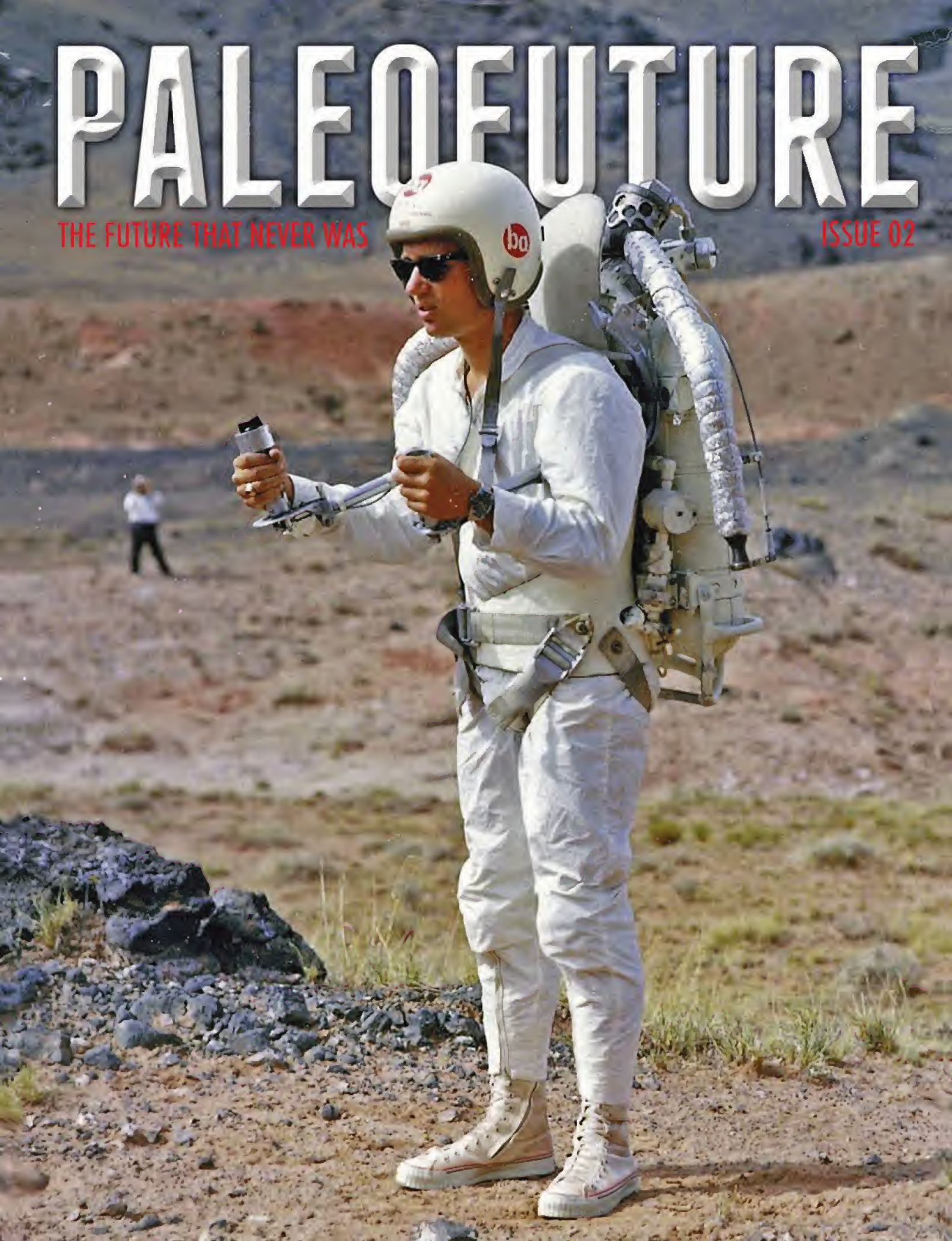
PALEOFUTURE

THE FUTURE THAT NEVER WAS

ISSUE 02



NEW DEPARTURES OF TOMORROW

Cool-running chain saw, like every type of power saw in use today, uses New Departure ball bearings for longer life at peak efficiency

Even Paul Bunyan couldn't match the pace of this "automatic lumberjack" of the future. It fells, sections and loads trees—all at the push of a button!

The company that launches this wonder will probably look to New Departure for ball bearings. For New Departures have proved their ability to hold moving parts in perfect alignment, cut wear and friction, and work long hours without letup—or upkeep. Above all, New Departure has lived up to its name—being *first* with ball bearing advancements.

So, when improving or designing a product, count on New Departure for the finest ball bearings.

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONNECTICUT

NEW DEPARTURE
BALL BEARINGS

NOTHING ROLLS LIKE A BALL

FEATURES

The Curious Case of Guinana the Bartender
by Sarah Brumble
pictures by Vladimir Verano
Page 06

The History of the Future of Public Transportation
by Wendy MacNaughton
Page 10

Just Sit Back and Relax
by Danya Henninger
Page 12

A Robot Has Shot Its Master
by Matt Novak
Page 15

Magic Highway
by Brett Ryan Bonowicz
Page 18

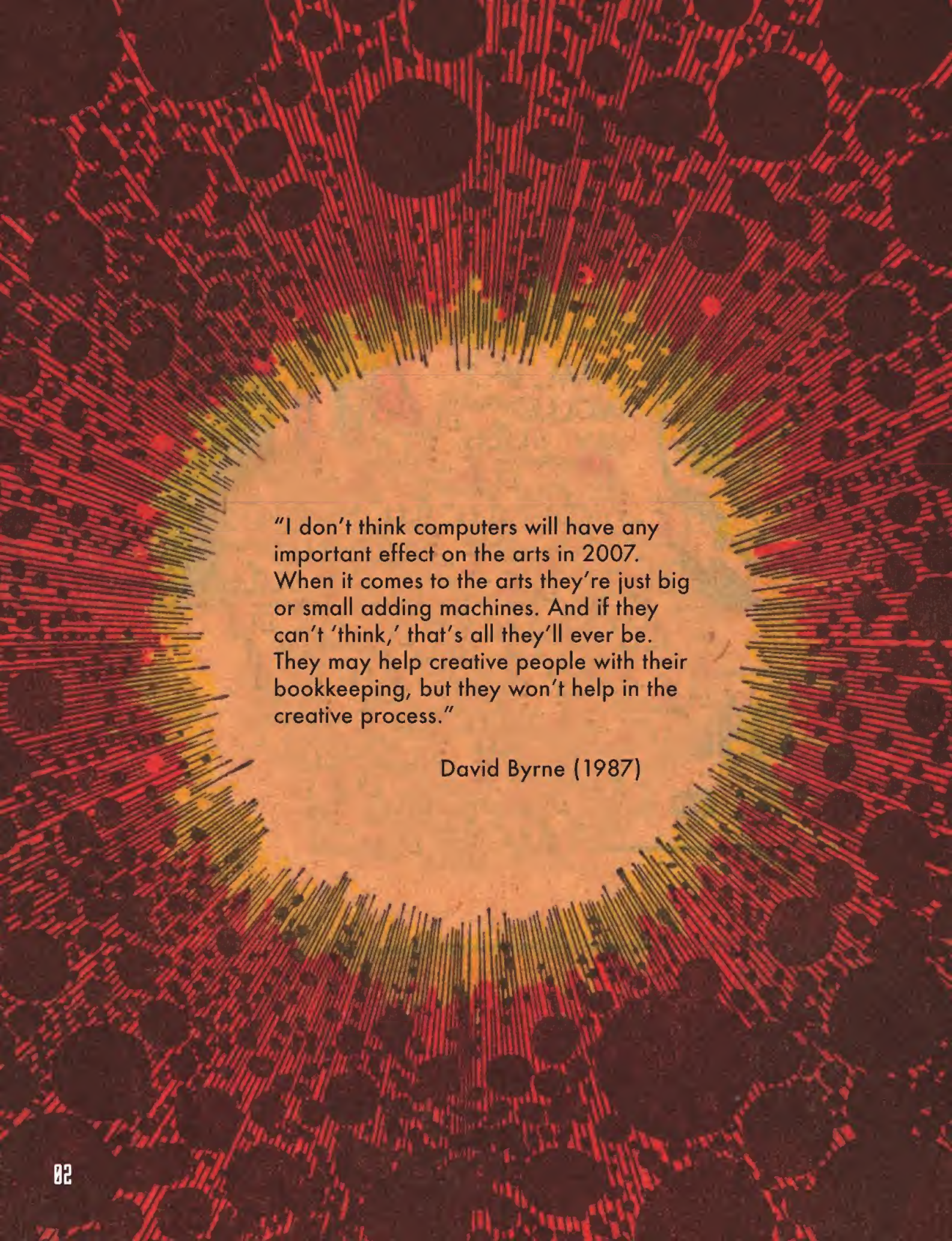
Boston to the Future
by William Ball
Page 41

The Moon as Mistress
by Trent M. Kays
Page 49

Love in the Time of Robots
by Rachel James
Page 54

Before the Lights Go Out:
An Interview with Maggie Koerth-Baker
Page 58

Front cover design by Caleb Barton. Photo above and on front cover: Bell Aerospace's Lunar Flying Vehicle (simulated Lunar Flying Vehicle, or LFV) being demonstrated for NASA and USGS personnel in Hopi Buttes, Arizona, on 2-3 August 1966.



"I don't think computers will have any important effect on the arts in 2007. When it comes to the arts they're just big or small adding machines. And if they can't 'think,' that's all they'll ever be. They may help creative people with their bookkeeping, but they won't help in the creative process."

David Byrne (1987)

October, 1944 ***Science and Mechanics***

Five Years of Yestermorrows

Matt Novak
Editor

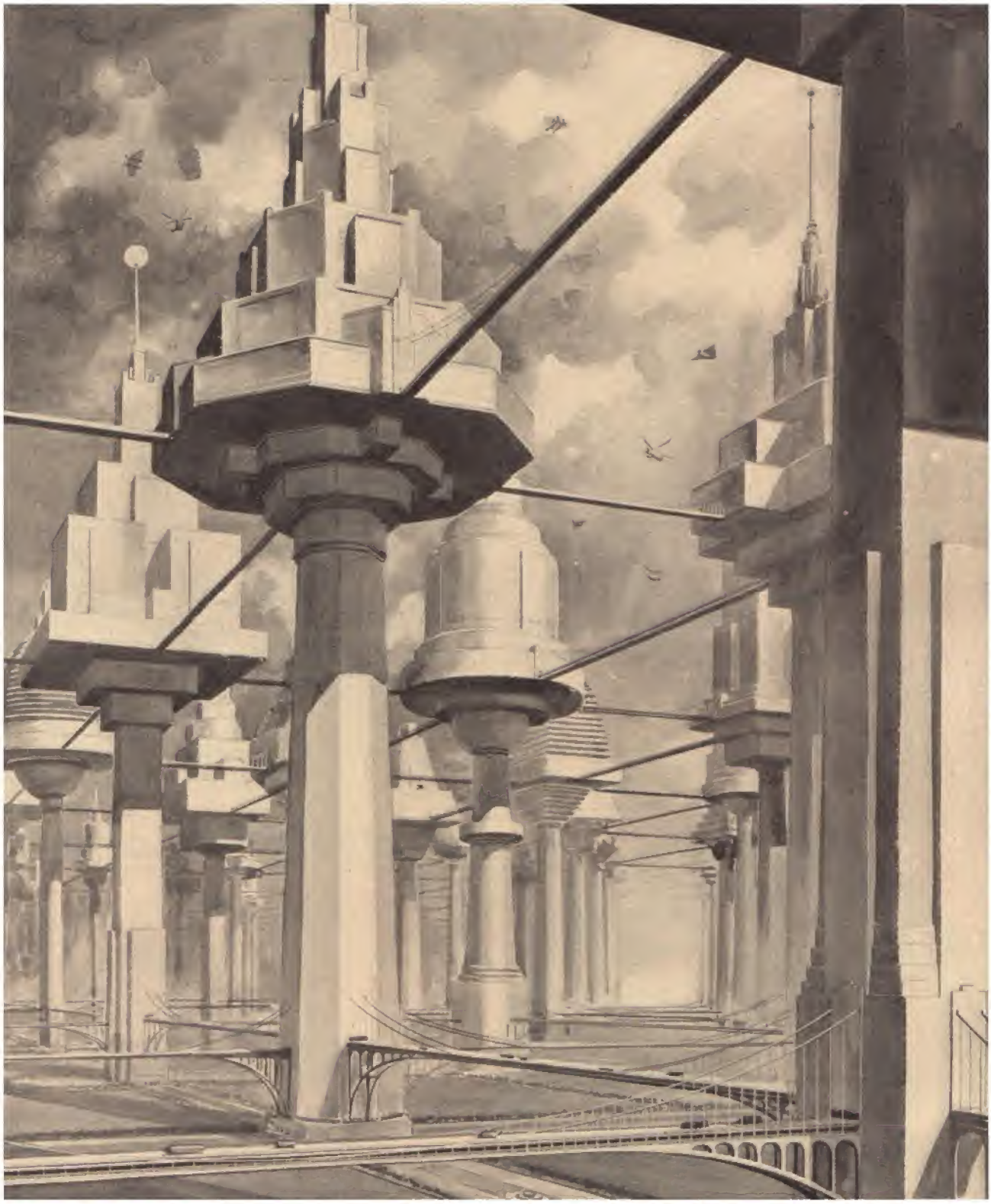
Futurism may very well be the most honest way to measure a generation's greatest hopes and darkest fears. By studying flying cars, jetpacks, meal pills, nuclear apocalypse, killer robots and other predictions for the future from people of the past, we get a front row seat to the dazzling spectacle of history.

When I started the *Paleofuture* blog in 2007 I had no idea that five years later it would become my full time job. But I'm sure glad it did. I've devoted the past five years of my life to exploring how the people of the past imagined the future and along the way I've collected a lot of weird stuff: space-themed board games from the 1950s, original animation art from the *Jetsons*, videophones from the 1980s, personal letters from designer/futurist Buckminster Fuller, countless magazines, books and movies, and a whole lot more.

My goal has always been to put historical futures in perspective so that we might better understand the hopes and fears of those that came before us. Through a better understanding of past futures we might be better able to escape the pitfalls of prognostication that hampered our ancestors. And we might even dispel some of the stubborn myths of history along the way.

Many thanks to all the contributors who made this issue possible and thanks, of course, to you for reading it. Enjoy, and don't hesitate to send me an email with your thoughts on *Paleofuture* or anything else: matt@paleofuture.com

Many thanks to Charles Shopsin of the Modern Mechanix blog for the vintage New Departure advertisements featured in this issue. Thanks to Brad Fidler for editing assistance. If you got this issue from a friend (sharing *Paleofuture* magazine is heartily encouraged) but would like to buy your own copy or find older issues, please visit www.paleofuture.com/magazine



Shaped like trees with slender trunks, homes and office buildings of the future may rise into pure air on pedestals of steel. Our artist presents here his conception of this startling proposal, made recently by R. H. Wilenski, noted British architect. The scheme leaves the ground level virtually unobstructed. Each building is supported upon a single, stalk-like shaft of steel or strong, light alloys, resting in turn upon a massive subterranean foundation. Modern advances in the design of high-speed elevators simplify the problems of transporting passengers between the buildings and the earth. Access from one building to another is provided by a system of suspension bridges, and stores and places of recreation contained in the building make it possible to dwell aloft for an indefinite time without needing to descend. Gigantic, luminous globes are placed at strategic points to light the aerial city by night, while by day the inhabitants enjoy the unfiltered sunshine and fresh air of their lofty nests.

-**April, 1934** ***Popular Science Monthly***

CREATING A NEW WORLD WITH ELECTRONICS

How soon will you be able to see over the phone?

It may be sooner than you think. For the remarkable new Hughes TONOTRON—now used for high-fidelity transmission of maps and other navigational pictures to ships and aircraft—will make possible "face-to-face" telephone calls to and from your office or home.

The TONOTRON is only one example of Hughes Products leadership in research and development of electron tubes and related advances in electronics, such as transistors and diodes. It is with products like these that science will bring about the dynamic electronics era—in which you will have on-the-wall television, electronic control of factory production, and countless other marvels.

As one of the country's largest electronics research and manufacturing firms, Hughes Products backs its semiconductors, cathode ray tubes, and industrial systems and controls with a long record of technical accomplishments. These include the "thinking" FALCON air-to-air missile, and the self-directing Hughes Automatic Armament Control which is standard equipment on all Air Force interceptors.

Undoubtedly there is a time- and money-saving application of Hughes electronic products to your own business. A Hughes Products sales engineer will welcome the opportunity to work with your staff. Please write: Hughes Products, Los Angeles 45, California.

HUGHES TONOTRON

RELY ON HUGHES FOR SEMICONDUCTORS ... ELECTRON TUBES ... INDUSTRIAL SYSTEMS AND CONTROLS.

HUGHES PRODUCTS

Engineers and Technicians—contact Hughes for exceptional career opportunities.


JEDI

THE CURIOUS CASE OF GUINANA THE BARTENDER

words by Sarah Brumble
illustration by Vladimir Verano

I was born a nerdy, lonely child of the early 1980s. My hometown in the famed Rust Belt region of the United States boasted a rich and colorful past teeming with mafia, millionaires, and Native Americans beheading early settlers. Despite such a colorful history, little awaited Wheeling's modern inhabitants aside from a future of strip mining, closing steel mills, and missing teeth.

Since my childhood social life pretty much sucked on day-to-day basis, too, I thrived on stories of (mostly) fictional characters leading interesting, unexpected lives. When not reading every book within reach, I spent entire years memorizing each scene in the Anne of Green Gables miniseries, Wild Hearts Can't Be Broken, and Robin Hood: Prince of Thieves. Thanks to my mother, a former aspiring astronaut, I also inherited an addiction to Star Trek: The Next Generation. A healthy dose of intergalactic wonder and philosophical bemusements intermingled with the aforementioned orphanhood obsession, creating one seriously awkward child who couldn't care less about popular drivel like Sweet Valley High and The Babysitters Club.

A dubious grasp on the nature of time and space may have had something to do with my outsider status. I hadn't understood that so-called "period pieces" took place in long gone eras, rather than contemporary, foreign locations infinitely more culturally rich than any in West Virginia. I was, however, completely aware that a the future sat glimmering on the horizon in which I'd be able to beam myself places via glitter plasma. I couldn't wait to cut out the all-too-familiar back seat vomiting that transpired each time I visited distant relatives.

All of these "realities" coexisted nicely in my overactive imagination. With an inner life populated by characters this flushed-out and interesting, who needed those Mother-May-I-playing losers? I had Maid Marion, Anne Shirley, Sonora Webster, Captain Picard (oh hey boy!) and the entire Enterprise crew on my team!

Sigh. There's the rub: hey boy. I slowly came to understand the past as one teeming with piquant, intelligent women, yet everything I saw of the impending future was overwhelmingly... masculine.

A cursory evaluation of Star Trek's females shows how a young girl could arrive at such a conclusion. Tellingly, only a few women stuck around long enough to make an impression:

•Doctor-what's-her-name: Early casting changes create an air of disposability. Advanced medical devices trump operator intelligence. Pining for the Captain outweighs awesome last name (see: "Paging D.r Crusher").

•Deanna Troy: Capable of profound feeling, lacking in the logic department (e.g., romantic flings with that oaf Riker). Speech impediment.

•Lieutenant Tasha Yar: Promise of ass-kicking good times dashed by vindictive pile of goo. Addendum: post-mortem Yar just kept dying. Over. And over.
In short, the more prominent the woman on the show, the more squarely she became someone with whom I had no interest in hanging out, let alone emulating.

Paralleling this analysis, the final female was clearly the best: Guinan the bartender (played by Whoopi Goldberg). Despite her modest, irregularly metered out screen time, this quiet and well-rounded woman managed to connect with much of the Enterprise's crew on a deeply personal level while professionally holding her own. Sensitive without being histrionic, logical but not cold, Guinan challenged the ship's status quo by way of her intellect and anomalously feminine sartorial choices.

Unlike others aboard the Enterprise, she managed to evade the omnipresent pitfalls of space womanhood. Guinan deftly avoided sexual encounters with fellow crew members, never—not even once—died on-screen, and was more than capable of defending herself thanks to centuries of prowess in a wide variety of combat techniques!

Ah... there's rub number two: Guinan was somewhere in the neighborhood of 500 to 700 years old. In an inconvenient twist, this fact makes Guinan a bizarre contemporary of none other than Canada's own Anne Shirley! Ultimately our beloved bartender proves an even poorer example of future womanhood than her Star Trek ladies-in-arms, since she's actually a relic of the past that's been shot into space.

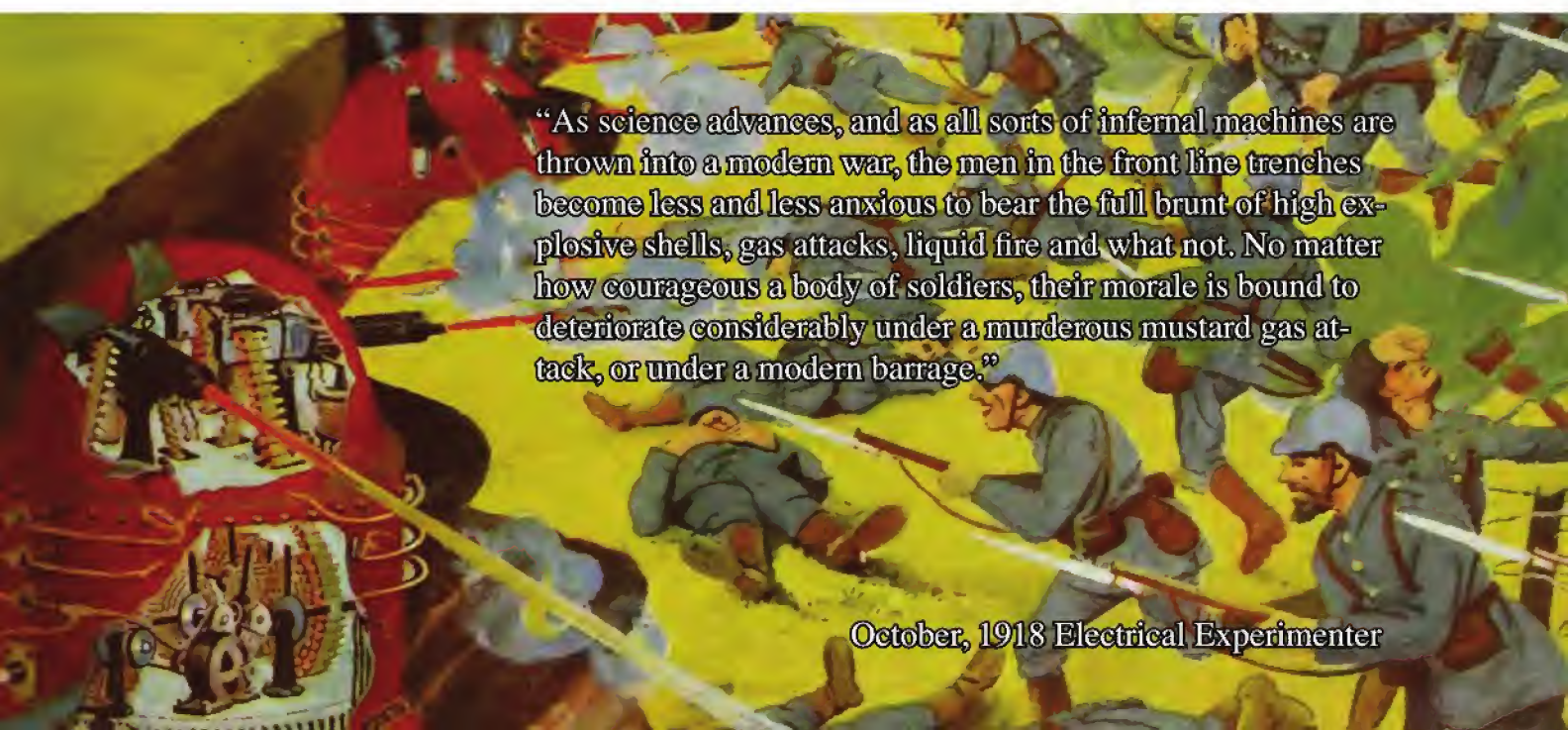
Always having been a bright, if misguided, kid I came up with an explanation for the void of substantive women to come: somewhere in the 2010's, someone must put something the water supply that made women of the future... suck.

For better or worse, the future I foresaw as a child is now upon us, or will be shortly. At least the present version of me is content in my reality. My childhood's maelstrom of the past and sort-of-future have converged in the form of a capable redheaded woman with a penchant for sailing on boats with significant structural problems, tending bar and generally seeing to the needs of those around me.

Regardless of how I got to where I am, the future marches forward, buoying all of us along in the universal slipstream. As we all are forced into going--hopefully boldly--where no one has gone before, I'd like to propose a toast: Let's all raise a glass of anything-but-water in hopes that the concept of the future depicted when I was a child, in some ways, turns out to be wrong.

Cheers to women of the future not sucking!

PALEOFUTURE



NEW DEPARTURES OF TOMORROW

Today, New Departure *ball* bearings are used by 14 leading manufacturers of washers and driers. Wherever there's a moving part, New Departures assure accuracy, low upkeep, longer life.

Maybe it's hard to imagine a home laundry that washes, dries, irons, folds. But it's even harder to imagine this wonder—or any other—working without *ball* bearings . . . New Departures.

In fact, New Departure *ball* bearings play an important role in just about *every* product with moving parts. For more than 50 years, manufacturers everywhere have counted on New Departure for bearings.

Why this confidence? It's a matter of living up to a name. It means being *first* with new departures—like the Sealed-for-Life *ball* bearing. And New Departure will be ready tomorrow with the *finest* bearings . . . *first!*

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONNECTICUT

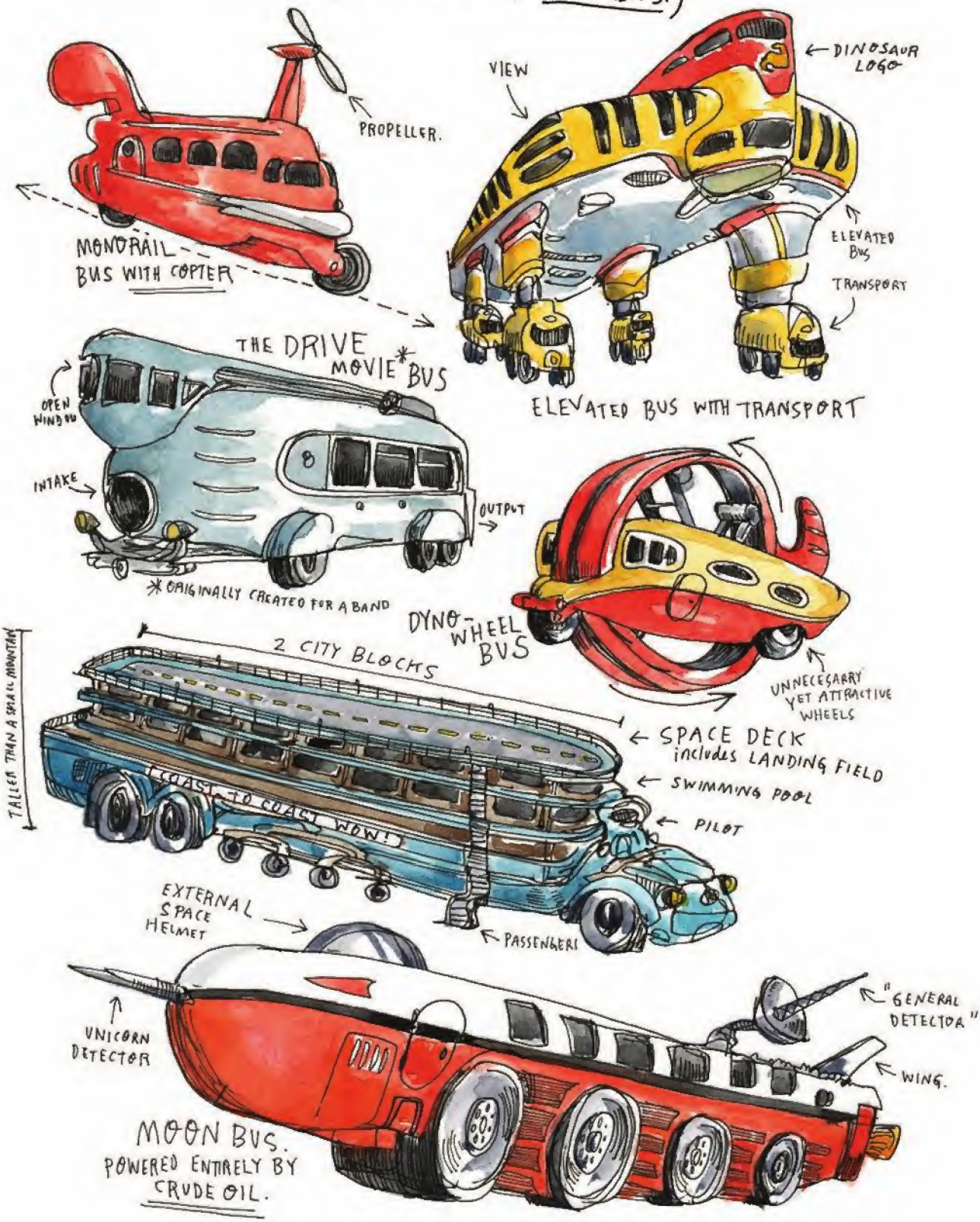
NEW DEPARTURE
BALL BEARINGS

NOTHING ROLLS LIKE A BALL

89

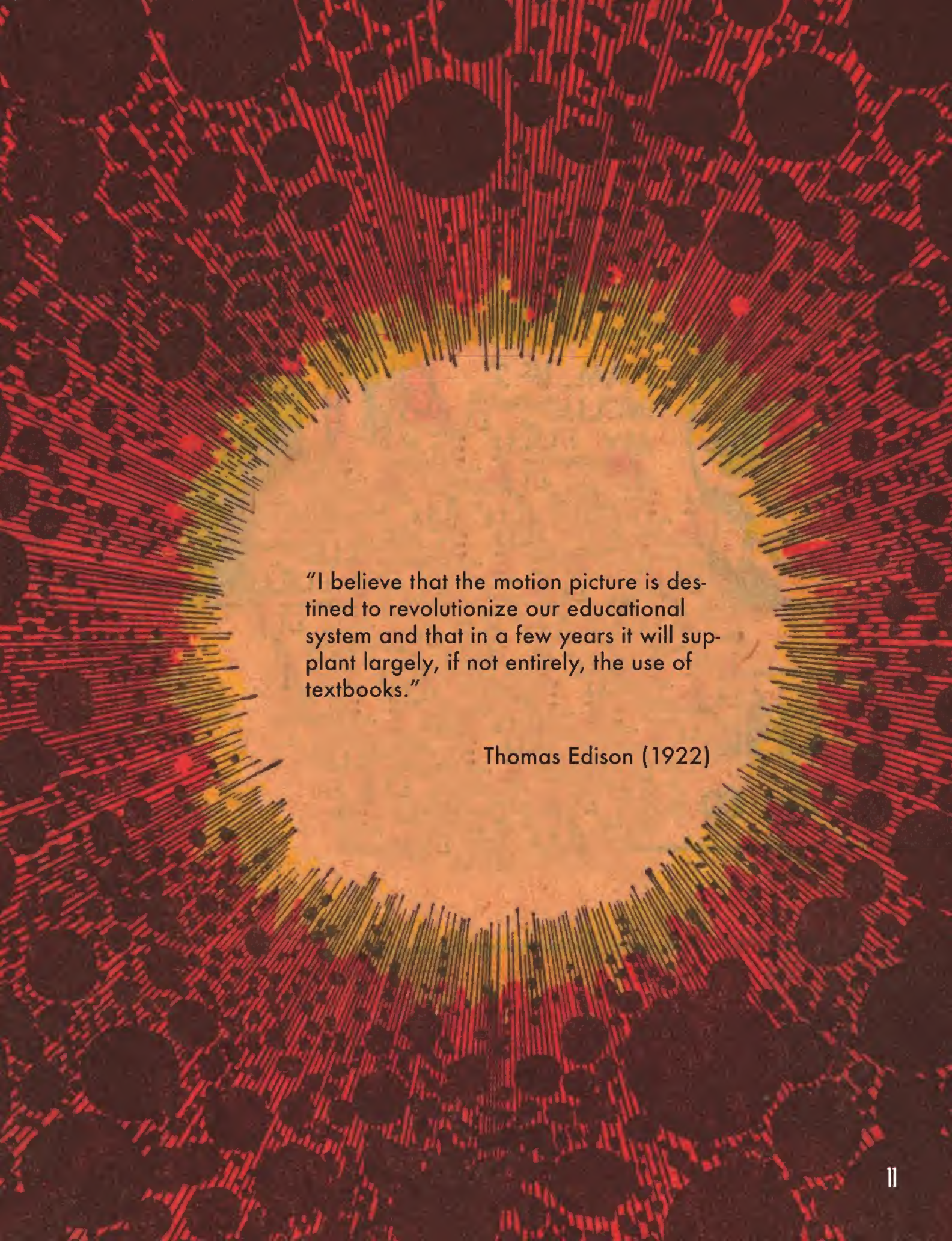
THE HISTORY of THE FUTURE of PUBLIC TRANSPORTATION.

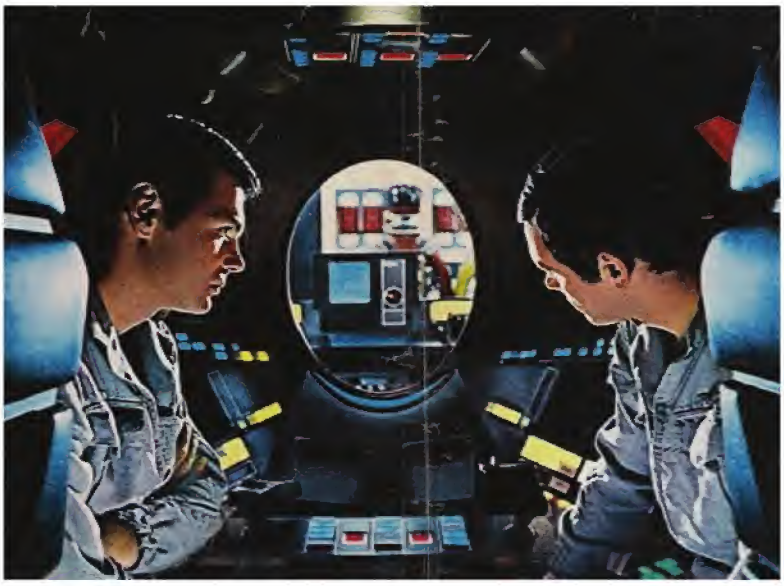
(SPECIFICALLY, THE BUS.)



NOTE: WHILE ALL DESIGNS DEPICTED ABOVE ARE REAL, THE SPECIFICATIONS CERTAINLY AREN'T.

by WENDY MACNAUGHTON


"I believe that the motion picture is destined to revolutionize our educational system and that in a few years it will supplant largely, if not entirely, the use of textbooks."
Thomas Edison (1922)



just sit back and relax

a look back at the real world hurdles to consumer space travel

by danya henninger

Right now, in 2012, consumer space travel is the exclusive realm of the ultra-rich. But no one expects that the be the case for ever, and perhaps not even for long. Several companies have recently been founded on the notion of bringing extra-atmospheric passage to the masses. While they currently tout quicker transport from one Earth-bound locale to another, the idea that one day the destination point will be off-planet is a widely shared vision.

What will commuter-level transit to other worlds be like? We can look at Stanley Kubrick's take in *2001: A Space Odyssey*, which presents a civilized but luxurious conveyance much like the airplane service of his day. On a trip to the orbiting space station, passengers are invited on board a Pan Am space clipper, file into comfortable seats and offered on-board amenities. The whole affair is filled with cordiality and respect.

Indeed, during the seventies, the future of airline passage looked bright, poised to become the most fun way for regular folks to get around. In the 1977 disaster film *Airport '77* – the third installment in a studio blockbuster series mostly overlooked in the wake of the Airplane spoofs it spawned – the action takes place on a multimillion-dollar "experimental" jet. This cutting-edge vehicle is equipped with luxurious comforts such as a full bar and a lounge with a grand piano and singer beside it. Air travel would only get better as technology progressed, was the assumption portrayed.

Contrast the gaiety of the *Airport '77* cabins and the genteel mood of the Space Odyssey cruise with your experience trekking through airports in the 21st Century. Stringent identification requirements. Restrictions on carry-on items. Constraints on personal mobility and even on verbal expression during and before the voyage. And not least, the forced allowance of Transportation Security Administration officials to open your luggage – breaking locks if need be – and pick through your personal belongings to deem if you pose any kind of threat.

This is thanks to the weaponization of airplanes, and the realization that jet fiascos could threaten many more than only their crew and cabin guests. The terrorist-wrought calamities of Airport '77 impinged upon a group of lives almost quaintly confined to the relatively few people on board. Now that the (minute) possibility of widespread destruction exists with each and every takeoff, all wayfarers are subjected to certain indignities, for the good of the general public.

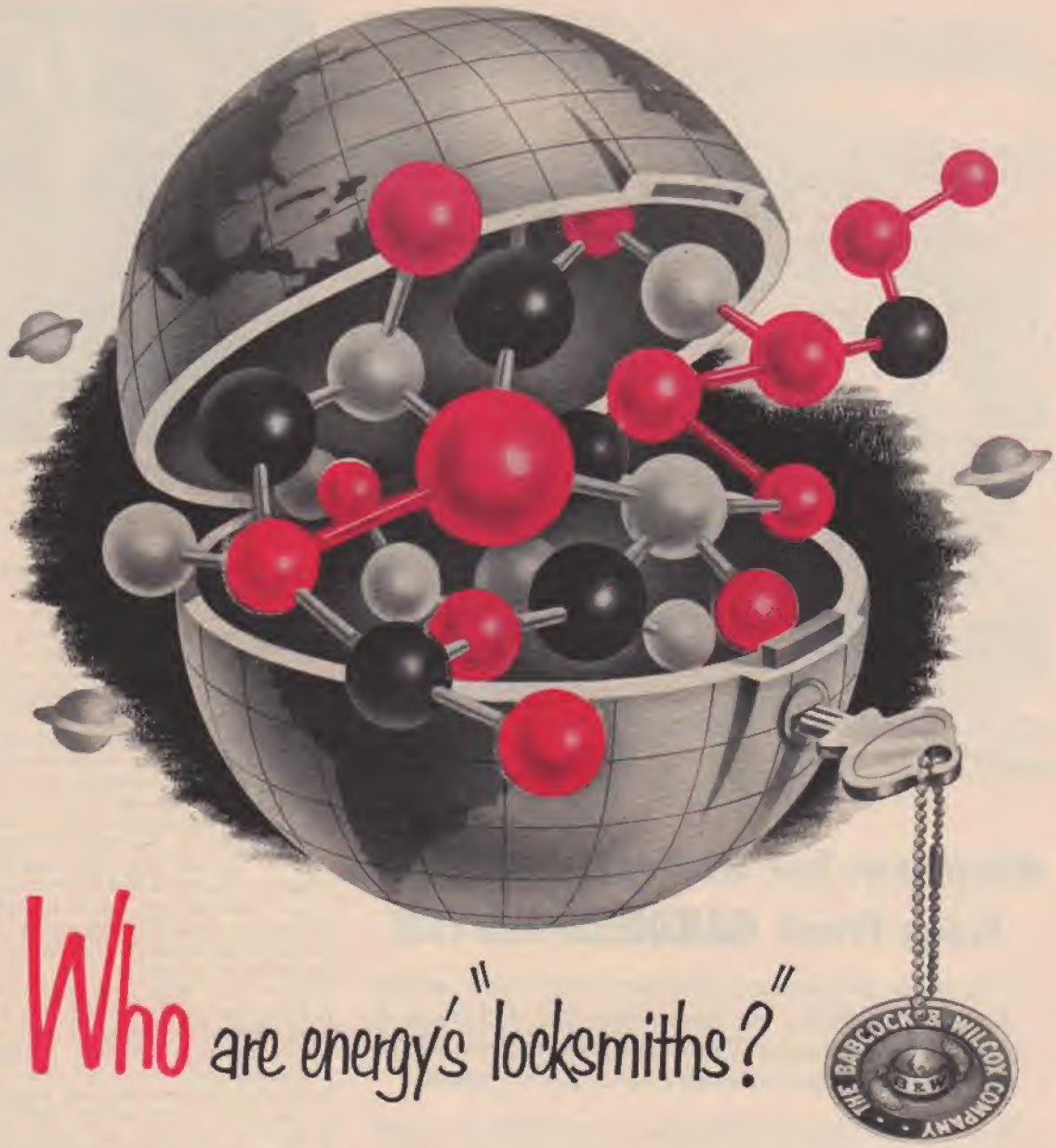
What damage could a mishandled spacecraft wreak? And what rigmarole, then, will be forced upon us when the proletariat take to the stars? Unless we are fundamentally wrong about physics (do faster-than-light neutrinos exist, and if so, can we hitch a ride on them to Mars?), or until 3-D scanning and printing is able to replicate the intricacies of human bodies and brains (transporters!), any voyage to another celestial body is going to be a long one. Instead of a five-hour flight from LAX to JFK, we might be talking about a five-year flight from EAR1 to PL582.

So a space commute will be cozy, not in the way comfortable seats soothed Dr. Floyd to sleep aboard the Orion III, but because passengers will be in extended forced isolation with one another. Even entertaining the likelihood of extended sleep-like stasis through much of the journey, whether via cryo-methods like in the Alien films or liquid-suspension as in Event Horizon, crew and travelers will be on their own for quite some time. If there are multiple possibilities for foul play within a 300-minute flight, how many more exist over an 1825-day junket?

"A lot," will be the answer from officials of all ilk, and anyone wishing to embark on such an excursion can expect a proportionately engorged investigation into their personal circumstance. Annoyed when they TSA picks through your carry-on pack? Just wait until they sort through the past 36 months of your life to determine if you're fit for travel.

Job-search companies already offer the service of sifting through a candidate's public profile and communication, flagging any inappropriate or suspect tweets, Facebook posts, online photos or other information. More and more of our lives will be documented in the public sphere and stored in externally-accessible information clouds. Advances in brain-scanning may lead to another trove of personal info – our thoughts, be they past or future.

Governments will increasingly turn to these searches to determine eligibility for all kinds of procedures, even that short hop over to Mars. So if you decide to take the Snake Plissken route of life off-grid, well, don't expect to be riding the Proxima Centauri Express any time soon.



Who are energy's "locksmiths?"

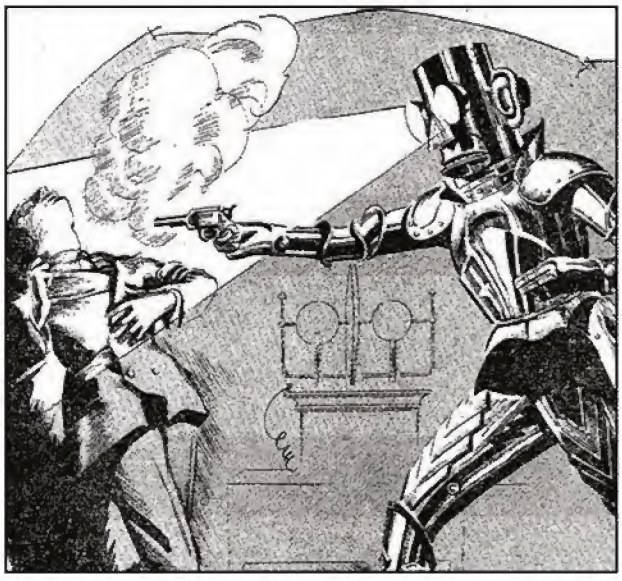
Locked within the Earth is ample provision for man's need of an abundance of useful energy. The Earth is stocked with coal, oil, natural gas and uranium from which energy can be harnessed through scientific use of heat.

Man has the task of finding the key to unlock the door to Nature's treasurehouse. Over the centuries he has learned that he needs not one key, but many, if the Earth's bounty is to serve him well. He must *release* heat energy, *contain* it, *absorb* it, *convert* it and *transport* it. Americans enjoy the highest standard of living in the world because they have found the keys and are applying their knowledge to the production of energy on a vast scale.

For three-quarters of a century B&W has assumed the responsibility and enjoyed the privilege of being in the forefront of man's struggle to release heat energy and convert it to useable form. The Babcock & Wilcox Company, 161 East 42nd Street, New York 17, N. Y.

BABCOCK & WILCOX

11



A Robot Has Shot Its Master

The 1930s Hysteria Over Machines Taking Jobs and Killing People

by Matt Novak

In the autumn of 1932, a British inventor named Harry May invited some friends over to see a demonstration of his latest invention, a robot called Alpha that could fire a gun at a target. Operated by wireless control, the robot sat lifeless in a chair on one side of the room. May placed a firearm in the robot's hand and made his way to the other side of the room to set up a target. With the inventor's back turned, the two-ton Alpha slowly rose to his feet and pointed the gun with his metallic arm. The men shouted warnings while the women screamed in terror. The inventor turned and was startled to see that his robot had come to life—and was now pointing a gun directly at him. Alpha lunged forward.

At the last possible moment, the inventor put his hand in front of his face to defend himself. The gun went off, the sound of discharged bullet echoing in the room. In that moment, Alpha became the first robot to rise up against his inventor. The story made headlines in newspapers across the United States, relayed as fact for the most part. Many of the stories quoted the inventor as saying, "I always had the feeling that he would turn on me some day." A small-town newspaper in Louisiana ran an editorial in the Sept. 27, 1932, issue titled "Our Dread of Robots." It recounted the story of Harry May's mechanical man come to life and compared it to Mary Shelley's Frankenstein: "[L]ife has imitated art once more. A robot has shot its master."

April, 1934 *Modern Mechanix*

None of this, of course, actually happened. At least not in the way that most everyone in 1932 would seem to believe. Harry May had indeed wanted to show off his robot firing a gun. But in reality, the firearm accidentally discharged as he was placing it in the robot's hand. Mr. May was not shot; he suffered only a minor burn on his hand from the discharge, as gunpowder is wont to do.

But why were people so willing to believe that a robot had blinked alive and decided to turn on its master? What about the 1930s lent itself to a fear of technology that was made tangible through a humanoid robot? Predictions for the future are always a direct reflection of the times in which they're created. During times of economic insecurity it's hard not to be filled with anxiety about the future of your country, your family, or your employer—should you be so lucky as to be employed. Just as all politics is local, all futurism is now. Over the last few years we've seen Americans of all political persuasions flood the streets; concerned about the future, and more often than not, concerned about their jobs. At the same time, we've seen a renewed fear of robots invading the workplace. Earlier this fall, Slate's Farhad Manjoo warned that even the highly educated—doctors, lawyers, scientists—could find their jobs outsourced to robots in the future; farm workers and warehouse employees are in more immediate danger of being replaced.

The Great Depression, like today, was quite obviously a dark time for the American worker. The unemployment rate hit nearly 25 percent by 1933, leaving 13 million people out of work. And people needed something to point to as the source of their woes. Rightly or wrongly, a great many things took the blame: the president, the weather, immigrants, the wealthy. But with the tremendous rush of technological advancement that was seen in the 1920s, there was a new and terrifying thing at which to point our unemployed fingers: the robot. Coined in 1921, the word robot was still relatively fresh to the national lexicon. But it was a great shorthand for something frightfully inhuman or dehumanizing.

And Frankenstein was the best way to illustrate this fear. Like the Louisiana editors, Bruce Catton invoked Shelley's frightening tale in an editorial that appeared in the Sept. 28, 1932, *Sandusky Star Journal* of Sandusky, Ohio. Catton went on to explain:

"A psychologist could probably make a good deal of this fascinating dread of ours for mechanical monsters. Machinery has created a revolution in our life. The wage-earner, the farmer, the soldier, the merchant, the politicians, the schoolmaster, the printer—all of us, in every moment of our lives, live differently than our ancestors lived because of the constant increase in the mechanizaton of society."

Many feared that fewer workers in factories—factories that were replacing manpower with more machines—meant the utter collapse of an already depressed economy. Certain industries were seen as being at particularly high risk of a robot invasion. In 1930 the American Federation of Musicians spent more than $500,000 to fight the advance of "robot music"—pre-recordings on records—with the Music Defense League. They ran a series of ads in newspapers across the United States and Canada that featured illustrations of robots. These menacing mechanical men represented the dreadful threat of recorded music that was seen as putting musicians out of work. Joseph N. Weber, president of the American Federation of Musicians, said in the March 1931 issue of *Modern Mechanix*:

"The time is coming fast when the only living thing around a motion picture house will be the person who sells you your ticket. Everything else will be mechanical. Canned drama, canned music, canned vaudeville. We think the public will tire of mechanical music and will want the real thing. We are not against scientific development of any kind, but it must not come at the expense of art. We are not opposing industrial progress. We are not even opposing mechanical music except where it is used as a profiteering instrument for artistic debasement."

The campaign to keep "real" music and "real" art in theaters was vicious. The robot represented everything that was artificial and threatening to the establishment of musicians who played live music. The campaign called out for the public to join in the fight. They were to save the art of music from "debasement."

An advertisement (see page 23) in the June 5, 1930, *Bradford Era* of Bradford, Pa., decried the Hollywood movie machine that an established industry is now trying to protect: "300 musicians in Hollywood supply all the 'music' offered in thousands of theatres. Can such a tiny reservoir of talent nurture artistic progress?" The irony, of course, is that today the music industry is battling to protect recorded music. Protectionist policies to save the old business models of newspapers, movies, and recorded music mimic those of history.

This is not to say that there weren't techno-utopian visions of the future during this period. Nor were all predictions about robots negative. It just happened that those who were able to look past the Great Depression and see a glorious technological future happened to be quite well off. Take, for instance, Walter S. Gifford, president of the American Telephone and Telegraph Co., who disagreed with Weber in the March 1931 *Modern Mechanix*:

"This depression will soon pass and we are about to enter a period of prosperity the likes of which no country has ever seen before. It is inevitable that business through science will work toward a social and industrial Utopia which will be gained by the perfection of the best and cheapest possible service consistent with financial safety."

And then there were the technocrats. The Technocracy movement, which started in New York in 1932, envisioned a society where reason and scientific efficiency vanquished all the world's problems, including the Depression. The first step in their plan was to replace all politicians with engineers and other scientifically minded professionals. Described as "a revolution without bloodshed," the Technocrats promised a guaranteed income which they believed would bring an end to crime and disease. One particularly striking issue of the Technocrats' magazine even featured a cover with a robot, the text reading: "Thirty million out of work in 1933—or $20,000 guaranteed income for every family—which?" Believers in Technocracy's socialist utopia both feared and respected this new hulking robot of automation that Americans believed were taking away jobs. Technocracy presented a world wherein humanity conquered the robots before the robots could conquer them. Technocracy's brief heyday came to an end when one of the movement's founders, Howard Scott, gave a rambling, incoherent, and much-ridiculed speech on national radio on Jan. 13, 1933.

The mythical fight against the mechanical man also made its way to the boxing ring. The April 1934 issue of Modern Mechanix featured an illustrated spread wherein boxing great Jack Dempsey goes toe-to-toe with a foreboding robotic opponent wearing boxing gloves. "I Can Whip Any Mechanical Robot" the headline screams. In the piece, a confident Dempsey proclaims, "I wouldn't be afraid of any robot or mechanical man. I could tear it to pieces, bolt by bolt and scatter its brain wheels and cogs all over the canvas." Even Mickey Mouse got in on the action in 1933, with the release of the short animated film Mickey's "Mechanical Man." The film shows Mickey the inventor concocting a robot to fight against a gorilla—who subsequently pummels the robot. Everything old truly is new again: Just this year, Dreamworks released the robot-boxing film *Real Steel*, which Slate's Forrest Wickman called a celebration of "the supreme might of man and machine working in unison, a combination that ultimately wins out over the soulless tech geekery which aims to outmode workers altogether."

Just as the 1930s worried about the tremendous upheaval that the "mechanization of society" had brought, so too do the philosophizers and pundits of our age worry about the corrupting influence of the Internet. From the vantage point of 2011 we might laugh at the people of the 1930s, asking ourselves what on earth they were worried about, but it's always a matter of degree. No doubt cavemen worried about the corrupting influence of the wheel just as many worried that the written word would destroy society by allowing man the luxury of no longer having to memorize complex tales of fact and myth. These technologies—these robots—are extensions of our humanity. The wheel and the book and the Internet either allow us or force us to become cyborgs. Your belief in this as a good or bad thing likely depends on your economic situation at the moment.

PALEOFUTURE

This article originally appeared at Slate.com on November 20, 2011

Aero 2000 concept car

magic highway

a look back at the fantastic cars of the future

by brett ryan bonowicz

The car of the future used to be an atomic-powered behemoth capable of driving the family comfortably and safely along the perfectly paved, intelligent highway of tomorrow. These highways were to work in tandem with our vehicles to guide us to our various destinations. More than half a century after those far-reaching predictions, the cars on the road today are neither atom-powered nor behemoth (save for the occasional Hummer). The intelligent highway is as much a distant memory as the phrase 'perfectly paved' and as we saddle up to the 21st century, the past's "futuristic" designs for automobiles are becoming increasingly antiquated.

The car of the future used to be an atomic-powered behemoth capable of driving the family comfortably and safely along the perfectly paved, intelligent highway of tomorrow. These highways were to work in tandem with our vehicles to guide us to our various destinations. More than half a century after those far-reaching predictions, the cars on the road today are neither atom-powered nor behemoth (save for the occasional Hummer). The intelligent highway is as much a distant memory as the phrase 'perfectly paved' and as we saddle up to the 21st century, the past's "futuristic" designs for automobiles are becoming increasingly antiquated.

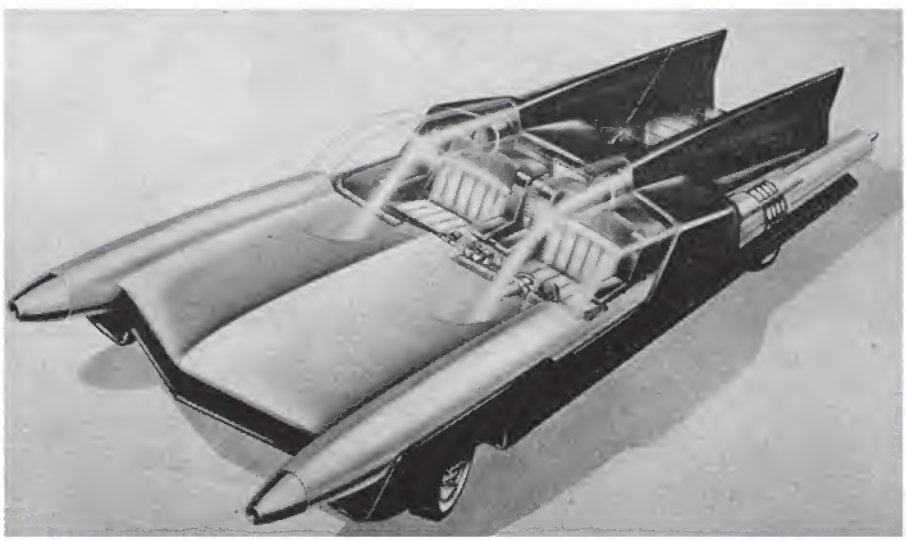
It was once thought that the car of the future's form and function didn't need to be directly related. Designs like the 1955 Lincoln Futura show a disregard for what ultimately would tie the design of the exterior of the automobile with the interior's functionality. With purely decorative fins, a windshield with total slight for drag, and a length much closer to a bus than that of a modern production vehicle, the Futura was wisely never put into production.

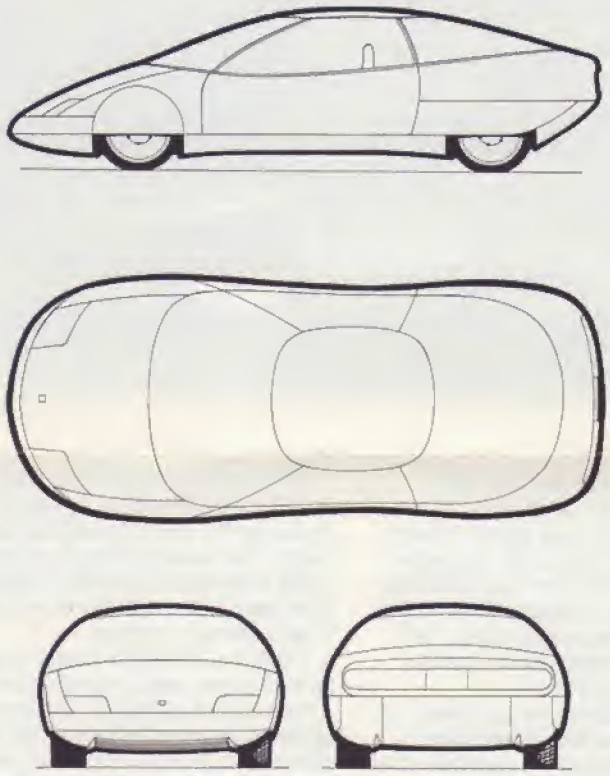
While the tail fins were inspired by the jet age, the atomic age led to speculation on the fuel of the future. Atomic energy was popularly thought to be a clean energy of the future that could possibly be used in vehicles. One of the automobiles designed for nuclear was The Astro, a concept car that was projected to have "an emissions guard that would ward off crashes with an energy field." While thoughts on how to deal with the chance of radiation are intriguing, the benefits of the possibly cleaner atomic energy are outweighed by the mere thought of what disasters could've happened on highways all over the world. What if the energy shield didn't work? The Astro was never mass-produced.

A concept design from three decades later, the Aero 2000, designed by GM had a voice command interface that one would be hard pressed to find in a vehicle today. The Aero 2000 did away with door handles altogether in favor of a voice control entry. The thinking here being that the lack of door handles would increase the overall drag coefficient and therefore the fuel economy of the vehicle. While someone today can see similarities to the Toyota Prius in the Aero 2000 design, that is more a product of the fact that taking the drag coefficient to its ideal yields such a design. It is a design with a function, and the form represents that.

Top: The Ford Futura as it appeared in the December, 1955 issue of *Mechanix Illustrated*.

Right: The Ford Futura as it appeared in the September, 1955 issue of the *Reading Automobile Club Magazine*, which was associated with AAA in Reading, Pennsylvania.





AERO 2000

Specifications

102.7	Wheelbase
171.5	Length
65	Width
46.5	Height
1,800	Curb Weight
68	Horsepower
88.2 cu.ft.	Passenger Compartment
.230	Drag Coefficient

In the 21st century the cars you see in Los Angeles reflect many different realities. There are cars made for large families, for people who like to go fast, cars made for drivers that want the best fuel economy or cars that seek to eliminate unused cargo space. The Smart car flies in the face of former future predictions. It features less instead of more. It's a car based on the exact idea that future visions of automobiles aren't suited for the modern everyday need. The Futura's length (227 inches) was more than twice that of a Smart car (98.4 inches). Living in Los Angeles, it's easy for me to see where the Smart company is coming from in their design to eliminate wasted space. The thought of looking at hundreds of thousands of Futuras literally parked on the 101 is a nightmare I never want to see realized.

For all the advancements we've had in the past fifty years, and the steady increase in design functionality, the basics of driving have remained the same. The steering wheel remains the defining apparatus for control. Nearly all vehicles continue to have four wheels and only concept cars are continuing to explore the notion of having anything less than that.

While we still can't seem to pave a simple road quickly or efficiently to save a life, it does seem strides are being made to automate the automobile in ways futurists once envisioned. Google is currently testing self-driving cars that will not only allow for safe texting, calling, eating, and even sleeping but could allow for better efficiency and a possible easing on the traffic problems that plague cities worldwide. These cars would communicate with each other in ways drivers never could and by removing the human element, efficiency can take over for emotion. The 1950s prognosticated such interaction in a different way, the assumption then was that it would be the highway that would keep the cars on track. As the roads are built from tax dollars, the economics of this have kept it from becoming a reality. Without a visionary to spearhead an intelligent highway system, it sadly remains roadkill. The rose colored glasses of the past neglected issues like the free market, infrastructure, and where the money for roads would come from. They were intoxicated with design in a way that just isn't seen anymore.

While one could say that comparing a concept car of the past to a production car of today is not a fair comparison, what has been looked at here are the needs of today from the wants of yesterday's tomorrow. Look no further than the Nissan Pivo to see another design for tomorrow. The Pivo features a 360 degree rotating three-seater cabin. It is thought that the rotation will eliminate the need for the reverse gear. Will this design be as laughable to the humans of the mid-21st century as the design of the Futura looks today? It would be difficult for a car designer today to put something as superfluous as a tailfin on a car today. Function is a component of design and design is now derived from function.

PALEOFUTURE

Western Electric is crossing a telephone with a TV set.

What you'll use is called, simply enough, a Picturephone® set. Someday it will let you see who you are talking to, and let them see you.

The Picturephone set is just one of the communications of the future Western Electric is working on with Bell Telephone Laboratories.

Western Electric builds regular phones and equipment for your Bell telephone company. But we also build for the future.

Western Electric
MANUFACTURING & SUPPLY UNIT OF THE BELL SYSTEM

NEW DEPARTURES OF TOMORROW

TOMORROW: Use no hands! For in this magic warehouse, orders fill themselves in seconds—electronically.

Here's tomorrow's "look" in warehousing! **Electronically, orders are received, checked against inventory, assembled, packed, wrapped, labeled, and whisked to shipping—untouched by human hands!**

When this futuristic "stock-chaser" takes shape, its intricate moving parts will turn on New Departure ball bearings . . . preferred throughout industry for their accuracy, dependability, and service-free performance.

If you have a notion for a new machine, call New Departure's engineering service for the ball bearings that will help make it a reality.

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONNECTICUT

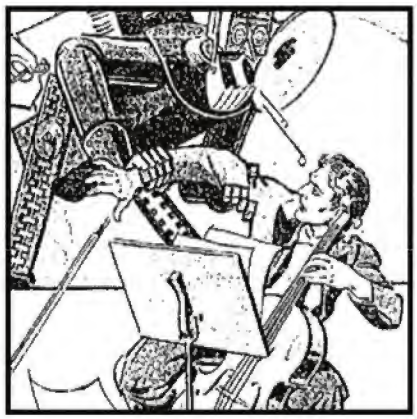
TODAY: Leading lift truck manufacturers rely on New Departure "sealed and lubricated-for-life" ball bearings to carry rugged loads without "downtime" or adjustments for wear.

GM GENERAL MOTORS

NEW DEPARTURE

BALL BEARINGS

NOTHING ROLLS LIKE A BALL



THE RISE OF ROBOT MUSIC

In the early 1930s the American Federation of Musicians was concerned that recorded music was harming the careers of live musicians who were performing at movie theaters. The Federation formed the Music Defense League and spent over $500,000 to fight the advance of "robot music." Recorded music represented a direct threat to their industry and they pulled out all the stops to describe the new process of delivering that music in theaters as cold and mechanical. The popularization of the word "robot" in the 1920s meant that the Federation had the perfect humanoid villain to stand in for a threat that was hard to illustrate in newspaper advertisements. The following advertisements ran in newspapers throughout the United States in 1930 and 1931.

The ROBOT on the RUN!

MILLIONS of Theatregoers Demand Real Music.

Music lovers everywhere are insisting that the inspiration and beauty of real art rendered by living musicians in the theatre be restored to them.

The Music Defense League, through which the American public are voicing their vehement protest against the elimination of real music from the theatre, is growing with astounding rapidity. The League has passed the two-million mark in less than three short months of effort. Votes in defense of national culture still pour in.

If you, too, would like to register your resentment against substitution of soulless, mechanical reproduction of music and the elimination of real music in motion picture theatres . . . If you would like to insist upon getting your money's worth in entertainment when you and your children attend the theatre, sign this coupon and mail it today.

AMERICAN FEDERATION OF

1440 Broadway,

Gentlemen:

Name .....

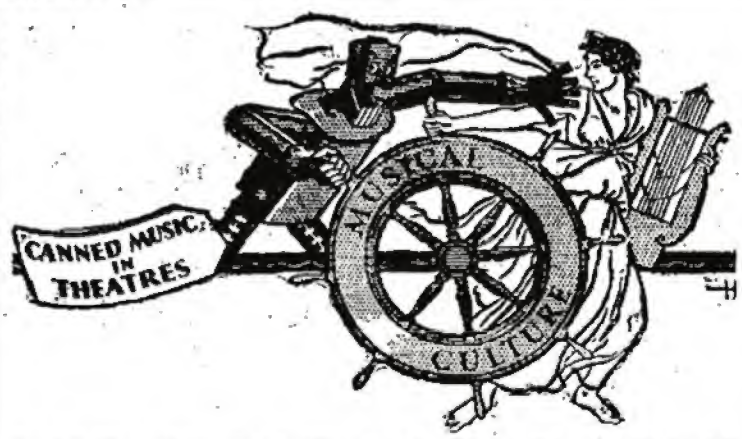
Address .....

City.....

THE AMERICAN FEDERATION OF

(Comprising 140,000 professional musicians in the United

JOSEPH N. WEBER, *President*, 1440 Broadway, N



THE ROBOT AT THE HELM

HERE is a struggle of intense interest to all music lovers. If the Robot of Canned Music wrests the helm from the Muse, passengers aboard the good ship Musical Culture may well echo the offer of Gonzalo to trade "a thousand furlongs of sea for an acre of ground." Are you content to face a limitless expanse of "sound" without a sign of music?

Monotony in the theatre—corruption of taste—destruction of art. These must inevitably follow substitution of mechanical music for living music.

Millions of Music Defense League members cordially invite you to join them in putting the Robot in his place. Just sign and mail the coupon.

American Federation of Musicians
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

Name .....

Address .....

City..... *State*.....

THE AMERICAN FEDERATION OF MUSICIANS

(Comprising 140,000 professional musicians in the United States and Canada)

JOSEPH N. WEBER, *President*, 1440 Broadway, New York, N. Y.

Left: April 15, 1930 Burlington Hawk-Eye (Burlington, Iowa)

Bottom: March 9, 1931 Simpson Leader-Times (Kittaning, Pennsylvania)

Right: June 5, 1930 Bradford Era (Bradford, Pennsylvania)

Petroleum Limited

dend No. 25

by given that a nited States Cur- as been declared, will be payable on y of June, 1930, in s specified in any ants of the com- ue upon presenta- coupons No. 25 at :

Canada, streets branch, a.
Trust company, York, N. Y.
Bank of New York, London, E. C. 2,

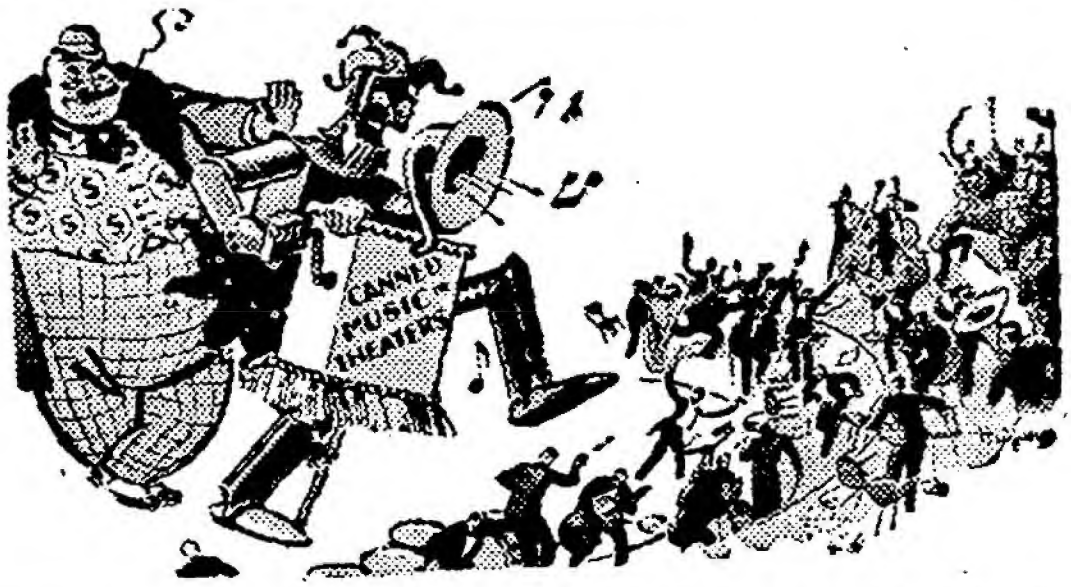
R
International Pe-

Toronto 2, Canada. o s' reholders of of business on the 1930, and whose nted by registered 1929 issue will be nalled from the of- ny on the 14th day

oks will be closed of June to 16th day usive, and no Bear- will be "split" dur-

Board,
J. R. CLARKE,
Secretary.
Toronto 2, Canada, y, 1930. —Adv.

ife insurance com- nual deathrate of untry below the age uarter of a million. l age the toll is 45,- ry five being caused



TRAMPLING ART FOR PROFITS

FOR all its virtues, modern industrialism *can* run amuck under the spur of greed for profits. Witness, the ruin threatening the Art of Music.

•

300 musicians in Hollywood supply all the "music" offered in thousands of theatres. Can such a tiny reservoir of talent nurture artistic progress?

•

The true function of the machine is to *increase* the value of the product fed into it—not to *debase* it. Therefore mechanical music, *as a substitute* for Living Music, is a spurious form of progress—Like a loom converting good wool into shoddy.

•

The grind organ, however operated, is a grind organ still. For music is an *emotional art*, a form of social intercourse, and hence dependent upon human contact.

•

Who profits by the elimination of genuine music from the theatre? *Not* the music-loving public! *Not* the musician!

•

If you agree that theatre patrons are entitled to real music—*in addition* to talking and sound motion pictures, for the price they pay—HELP SAVE THE ART FROM RUIN. Enroll with millions of others in the Music Defense League. *When the public's voice is raised its will must be served!*

American Federation of Musicians
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

Name .....

Address .....

City..... *State*.....

THE AMERICAN FEDERATION OF MUSICIANS

(Comprising 140,000 professional musicians in the United States and Canada)

JOSEPH N. WEBER, President, 1440 Broadway, New York, N. Y.

SUBSCRIBE FOR THE ERA

ADVERTISE IN THE ERA

SUBSCRIBE FOR THE ERA

CONTINUED ON PAGE 62

ADVERTISE IN THE ERA

TRAIN OF THOUGHT FOR THE FUTURE

Some day this war will be won by America and her Allies.

Our first duty meanwhile is to meet the demands of the war. This we are doing.

The going hasn't always been easy or comfortable. We believe you understand the reasons, and we appreciate your patience, your good-humored acceptance of inconvenience.

And we'd like you to know our ideas of comfort and style go far beyond what we're able to offer today. That's why we print the picture below.

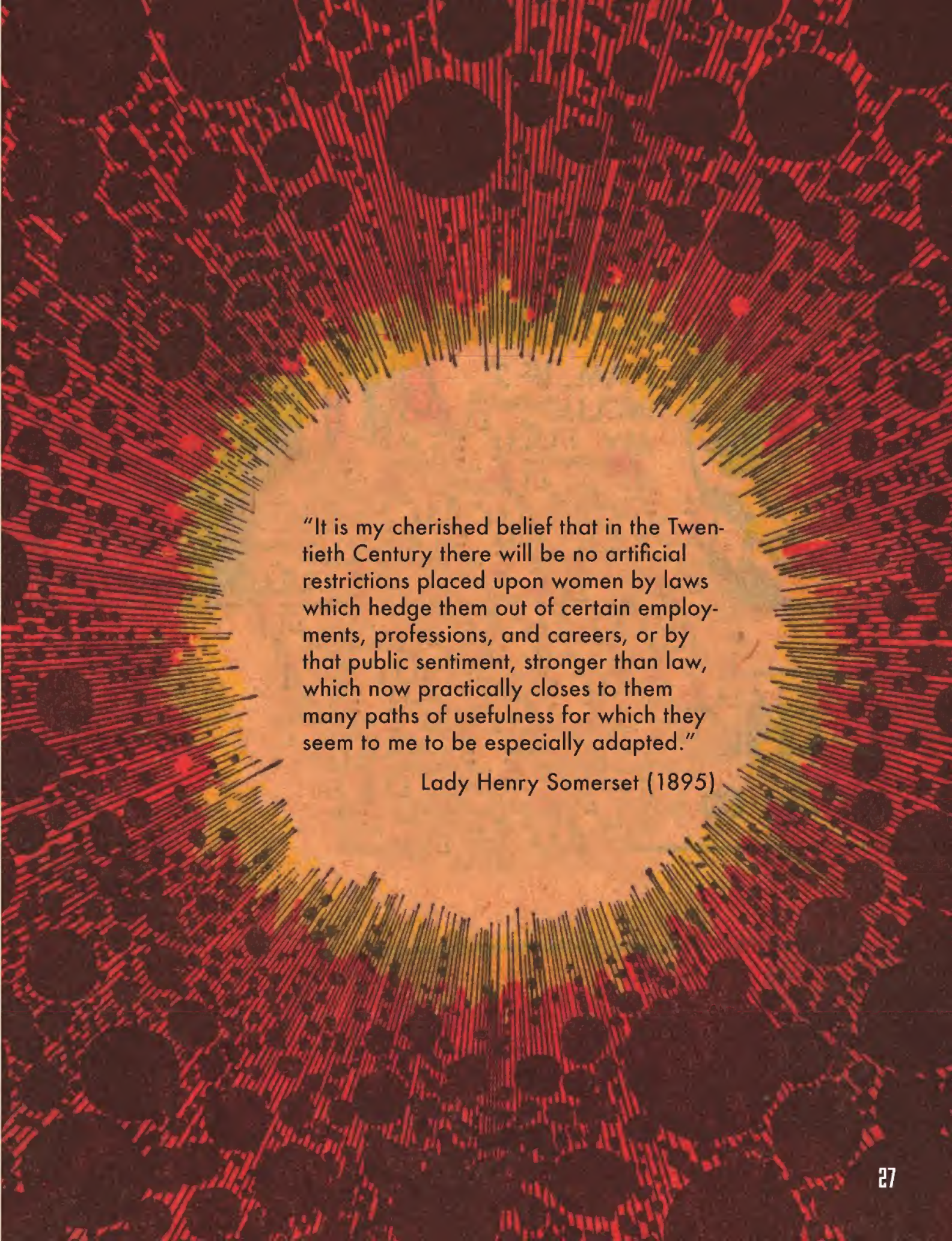
It will give you some idea of how we'd like to serve you — how we're looking and planning ahead right now to make future railroad travel a thrillingly pleasant experience.

It can't be done all at once. It will take money and time.

But you can be sure of one thing. Our goal is to give future America the finest transportation the world has ever seen.

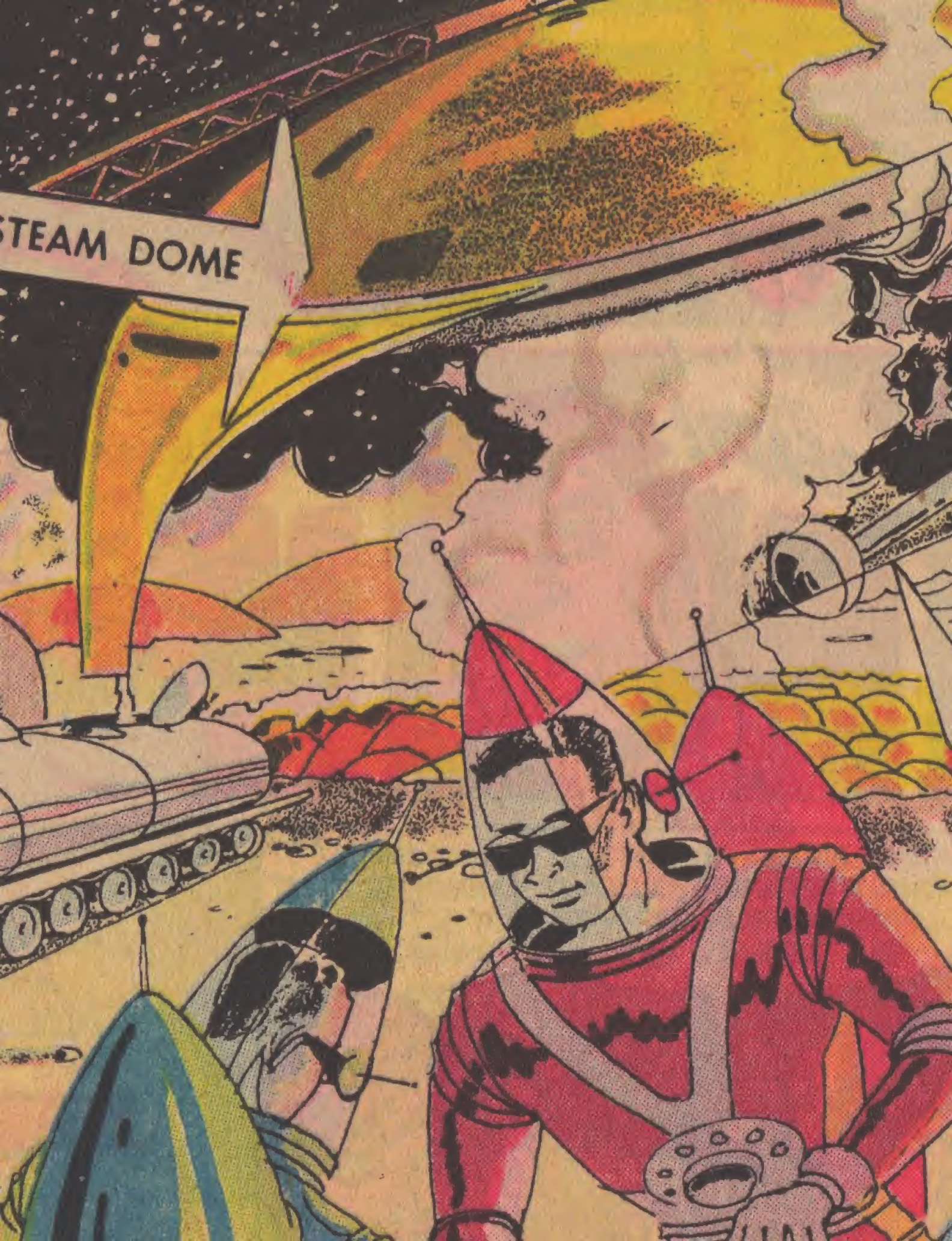
BUY MORE WAR BONDS

ASSOCIATION OF
AMERICAN RAILROADS
ALL UNITED FOR VICTORY

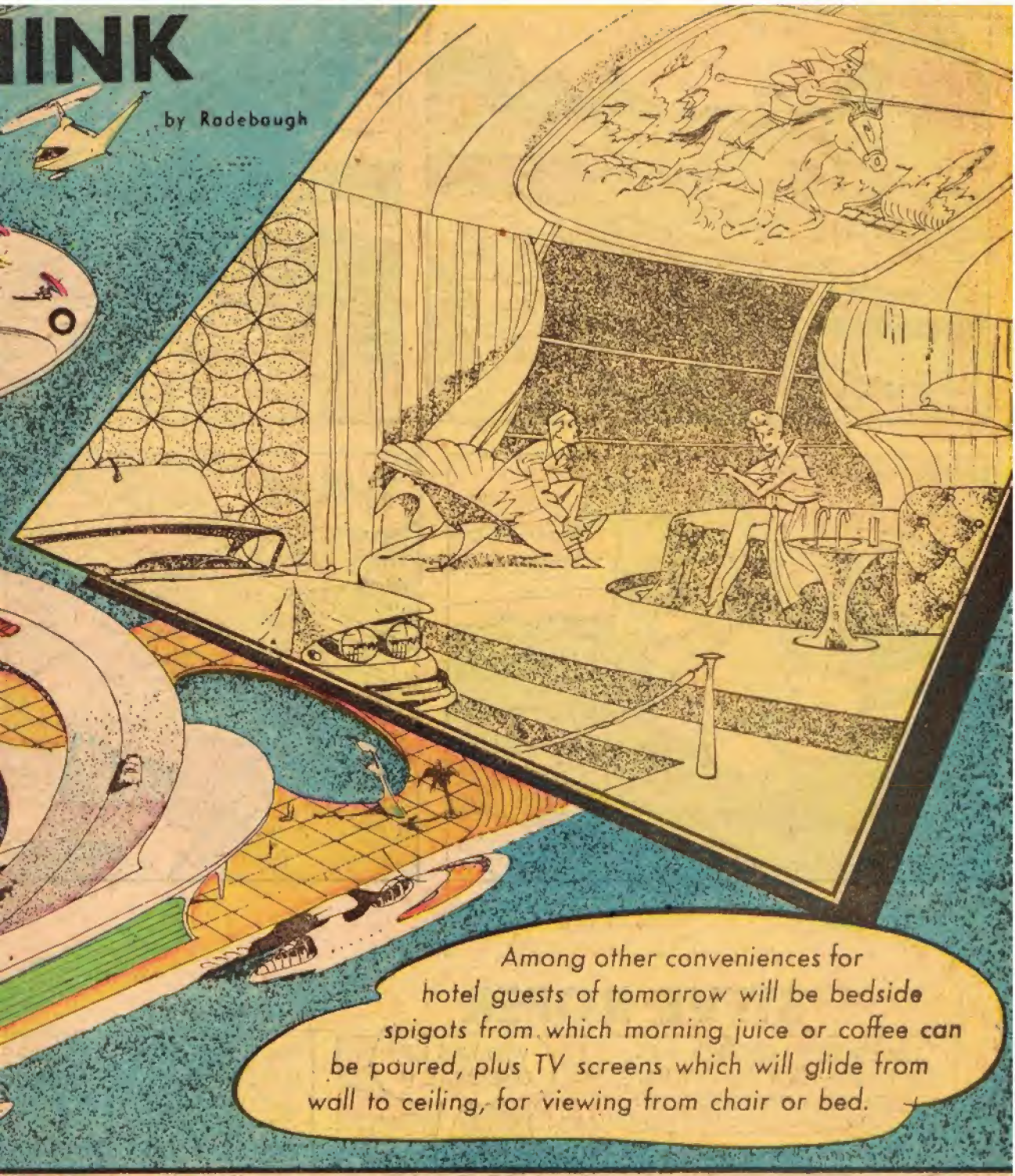

"It is my cherished belief that in the Twentieth Century there will be no artificial restrictions placed upon women by laws which hedge them out of certain employments, professions, and careers, or by that public sentiment, stronger than law, which now practically closes to them many paths of usefulness for which they seem to me to be especially adapted."
Lady Henry Somerset (1895)

CLOSER THAN WE THINK

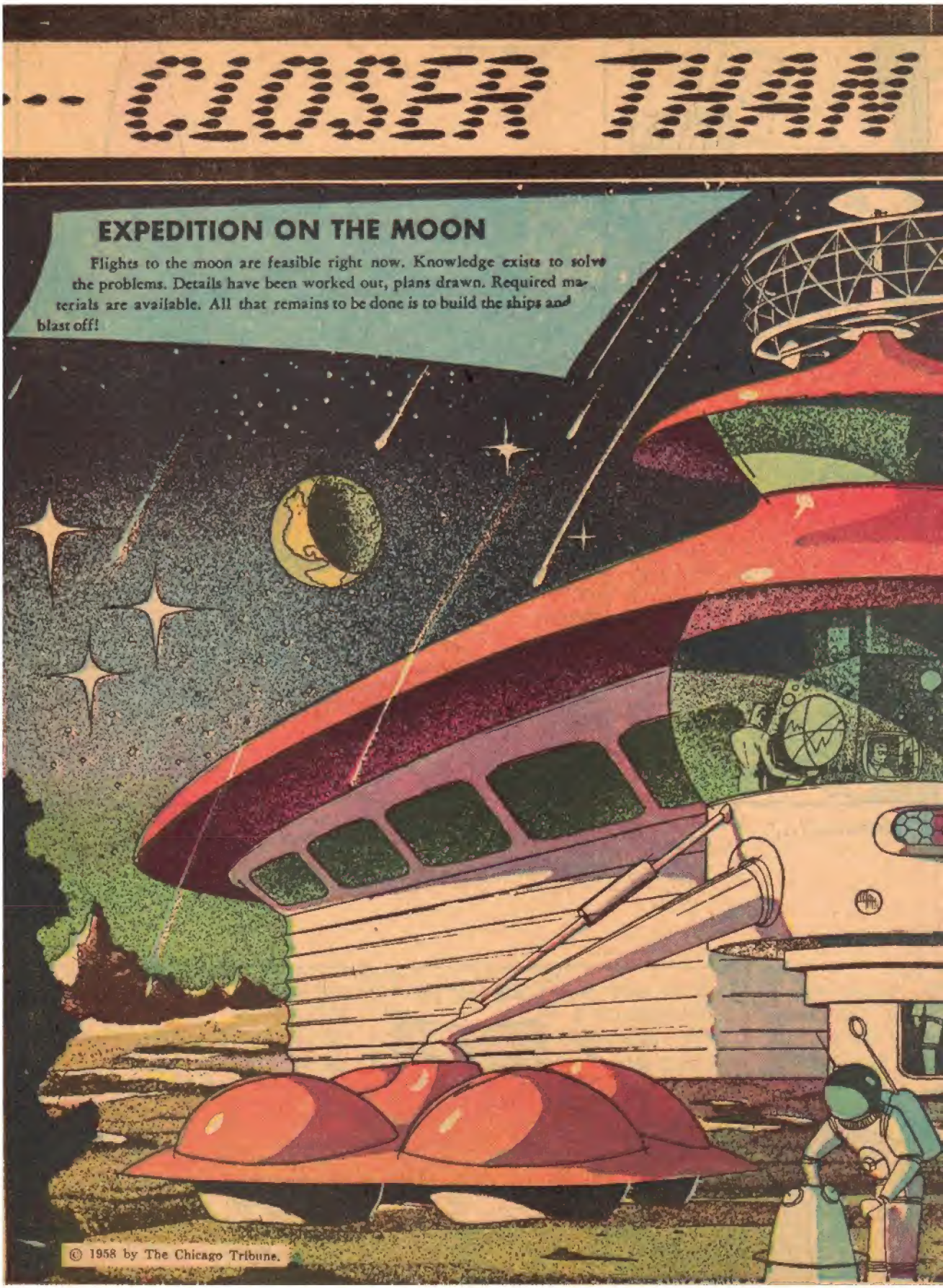
From 1958 until 1963 the Sunday comic strip "Closer Than We Think" ran in newspapers across the United States and Canada. Illustrated by Detroit-based commercial artist Arthur Radebaugh, the strip featured the fantastic technological advances that were just around the corner. At its peak, the strip reached about 19 million readers. We take a look back at some of the strip's finest examples of techno-utopian futurism.


STEAM DOME

DRIVE-UP HOTEL Tomorrow's hotel guests will arrive by land or air, but in either case there will be ready accommodation for them. Forward-looking hotel managers envision a heli-



copter landing deck on the roof for fly-in visitors, who will enter a rooftop garden beneath a spacious airdome, while a robot parks their whirlybirds. Auto drivers will follow ramps to parking spaces inside each suite.


CLOSER THAN
EXPEDITION ON THE MOON
Flights to the moon are feasible right now. Knowledge exists to solve the problems. Details have been worked out, plans drawn. Required materials are available. All that remains to be done is to build the ships and blast off!
© 1958 by The Chicago Tribune.


WE THINK!---
by Radebaugh
Yes! IT IS "CLOSER THAN WE THINK!"
NEWS FLASH!
BULLETIN--MOON FLIGHTS
NEW YORK, JAN. 17--TECHNICAL MAGAZINE EXPERTS URGED TODAY THAT THE UNITED STATES SPEED UP PLANS TO SEND A ROCKET TO THE MOON IN THE NEAR FUTURE.
EDITOR NORMAN BAKER SAID MOON EXPEDITIONS COULD BE MADE TODAY WITH THE TECHNICAL INFORMATION AVAILABLE. AN ASSOCIATE, EDWARD MULL, SAID THE EXPENSE OF LAUNCHING AN UNMANNED MOON ROCKET WOULD BE RELATIVELY SMALL.
LATER STEPS WERE VISUALIZED AS INCLUDING A MOON VEHICLE CARRYING TECHNICAL EXPERTS. THIS VEHICLE WOULD BE HEAVILY ARMORED FOR PROTECTION AGAINST COSMIC STONES, IT WOULD HAVE AIR LOCKS SO CREWMEN COULD MOVE BACK AND FORTH WITHOUT DIFFICULTY BETWEEN THE MOON'S SURFACE AND THE MOONMOBILE.
1-19

CLOSER THAN WE

FLAPWING FLYCAR

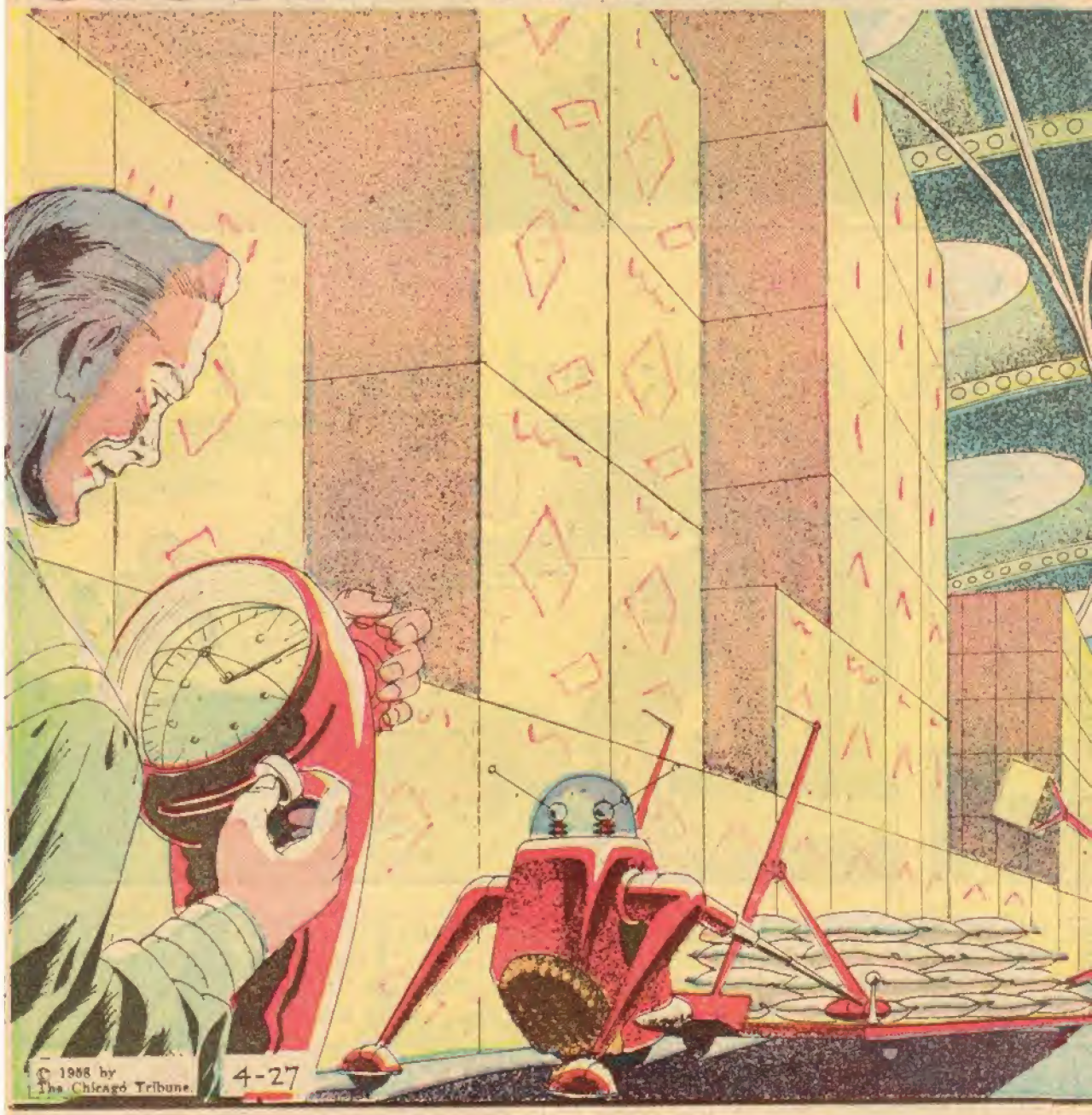
"Let's all fly like the birdies do." That might well become a slogan—with the development of a kind of flying machine which keeps aloft by flapping its wings.

The late William B. Stout, a famous American engineer, worked many years on such a project before death ended his experiments. Now, Russian news agencies

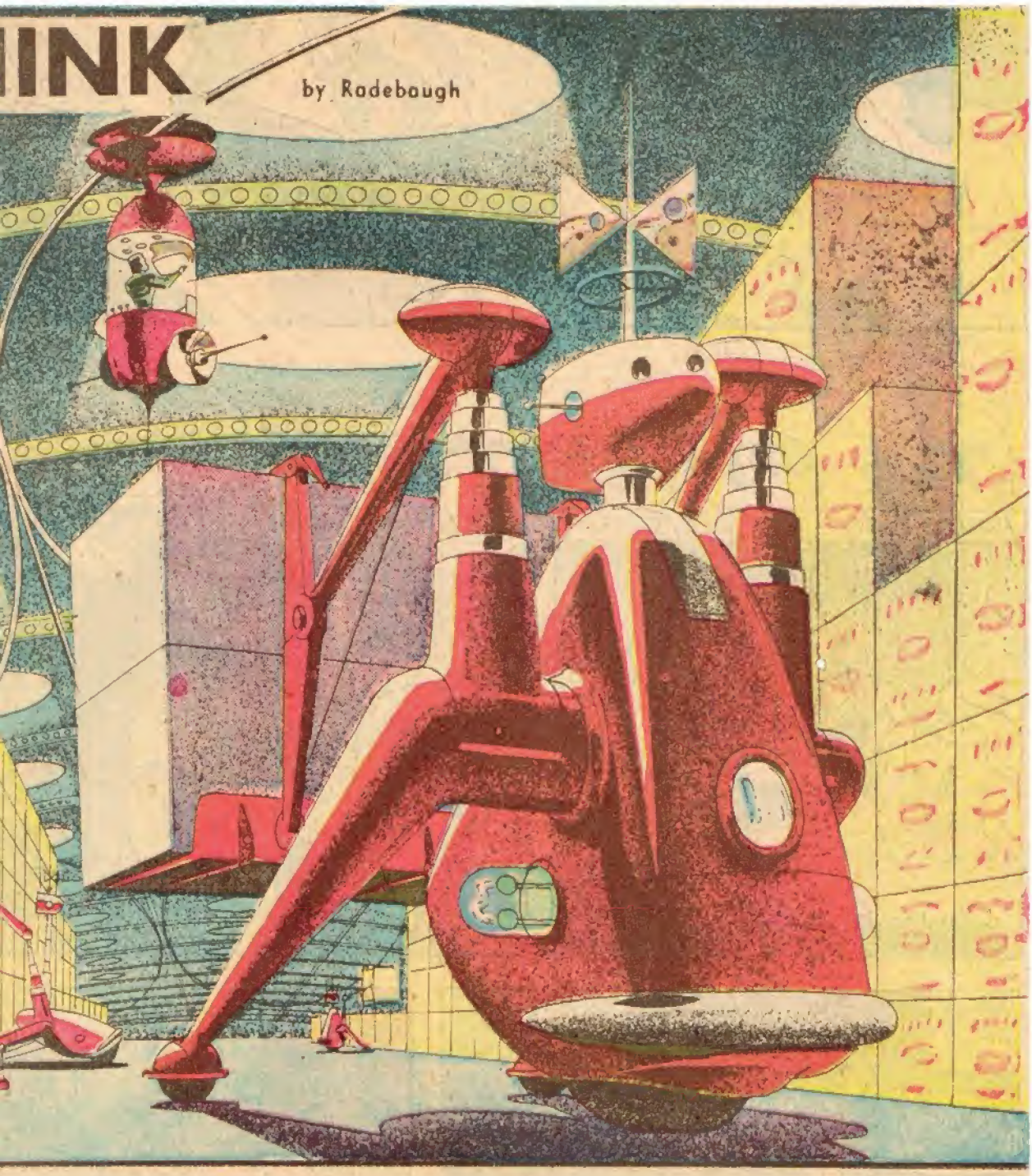
say new studies may perfect the ornithopter class of flying machine. ("Ornitho" is a Greek word meaning bird, and "pteron" means wing.)

The Europeans hope for success with a flying, wing-flapping motorcycle propelled by a light engine. And word of their moves has resulted in renewed interest in America in personal ornithopter transportation systems.

CLOSER THAN WE TH

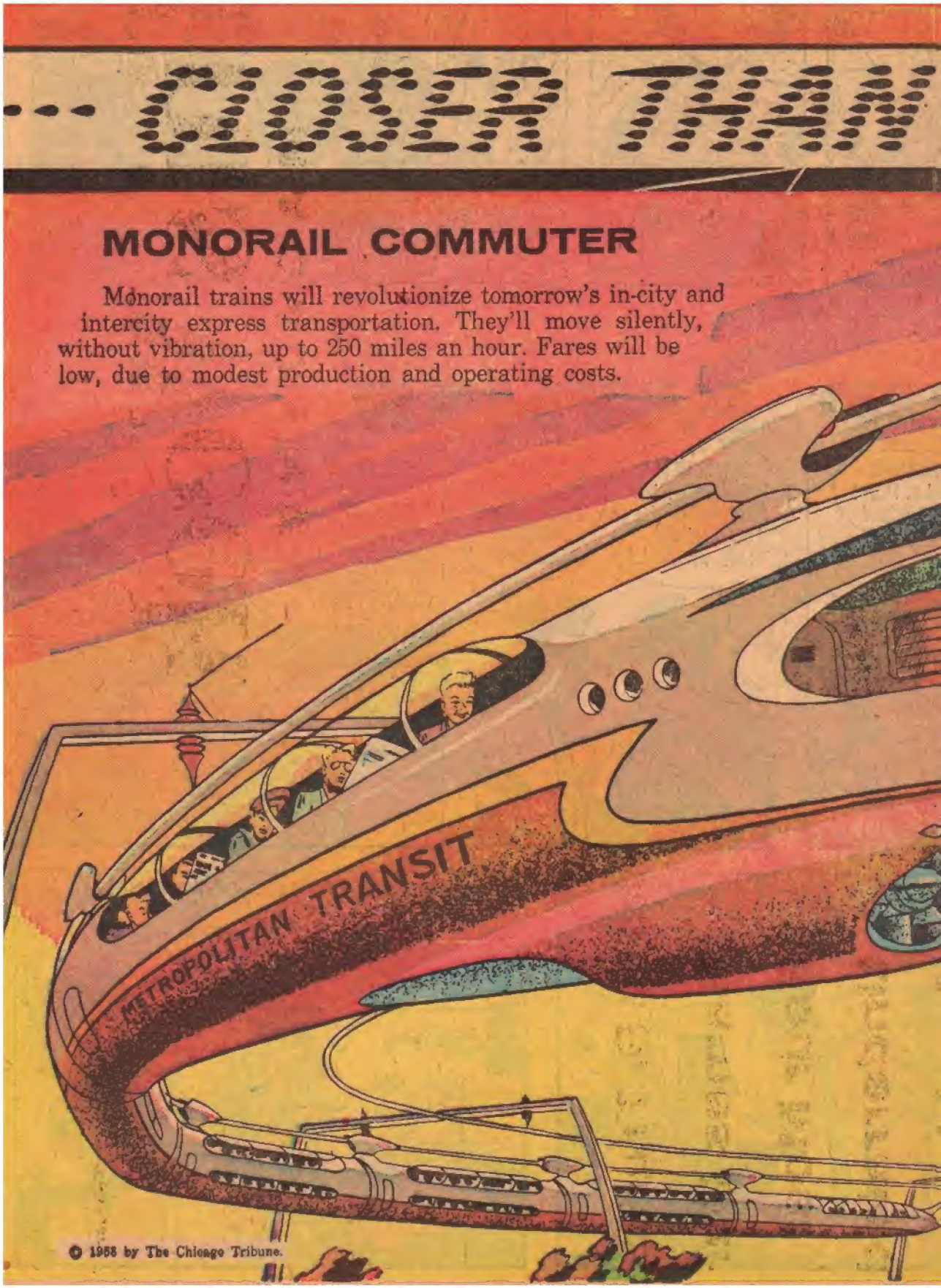


ROBOT WAREHOUSES Manpower shortages in the future may require mechanized handling of the necessities of life—food, clothing, building components and so on. As the population grows, the size of storage facilities will have to keep pace. Here is a



robot warehouse of the future, operated by a corps of mechanical men controlled by a lone operator in a control cupola suspended from a ceiling monorail. Directed electrically, never tiring, a robot warehouseman would pursue his duties as energetically as the proverbial ant.

April 27, 1958


... CLOSER THAN
MONORAIL COMMUTER
Monorail trains will revolutionize tomorrow's in-city and intercity express transportation. They'll move silently, without vibration, up to 250 miles an hour. Fares will be low, due to modest production and operating costs.
METROPOLITAN TRANSIT
© 1958 by The Chicago Tribune.

February 2, 1958

STEPS IN THE RACE TO OUTER SPACE

Mars Snooper

This nuclear-fueled reconnaissance craft is preparing to land on Mars' outermost satellite, Deimos—12,500 miles away from the "red planet" (center) and 35 million miles away from the Earth. Deimos' gravitational pull is so slight that a featherlight landing could be made, and a take-off could be accomplished with little more than a shove of the pilot's foot! (At Deimos' orbital speed, such a push would start the ship back to Earth at 3000 miles per hour.)

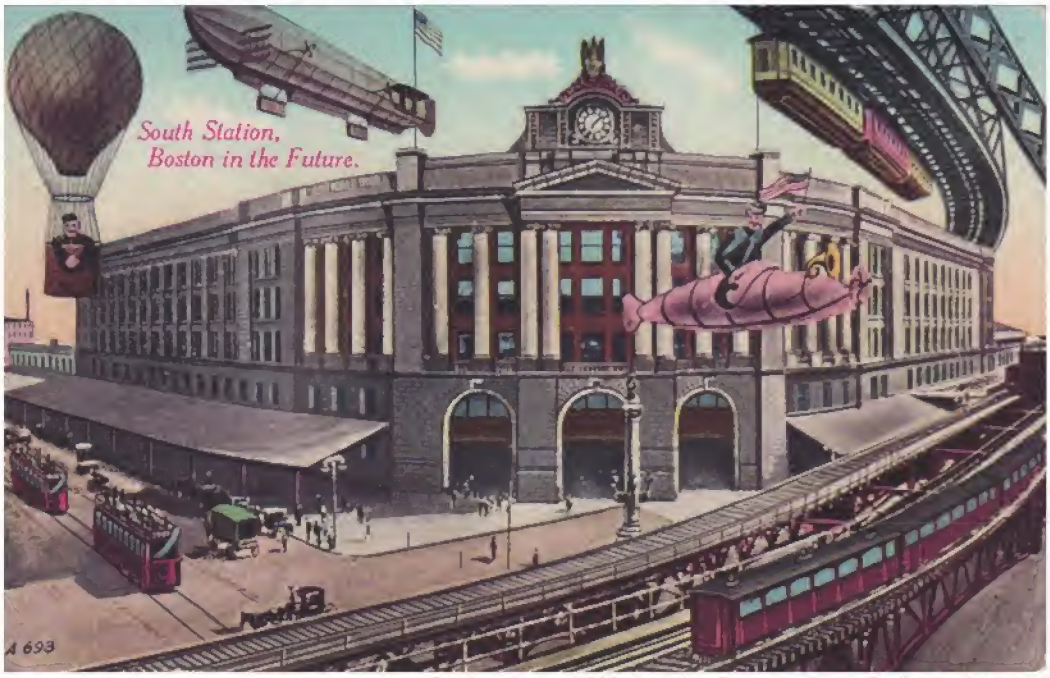
Our spaceship is designed to fly in two directions—nose first as a space rocket and tail-first as a ramjet airplane. Propulsion for both is provided by a single atomic heat source, reacting with hydrogen for rocket thrust, and with atmosphere to power the ramjets.

Travel to Mars, braking for landing, take-off and re-entry are accomplished by rocket-thrust. As the ship approaches the Earth's atmosphere, it assumes a tail-first attitude. The "petal doors" enclose the rocket nozzle, and the ship is transformed into a high speed, ramjet airplane with M-shaped wings. Control fins are located in the nose of the craft, near the crew's quarters.

* * *

Engineers—Scientists: If you desire a career in space projects, write to Professional Placement, ***ARMA*** Division, designers and developers of inertial guidance systems for Air Force TITAN and ATLAS ICBM's. ***ARMA*** . . . Garden City, New York. A Division of American Bosch Arma Corporation.

AMERICAN BOSCH ARMA CORPORATION

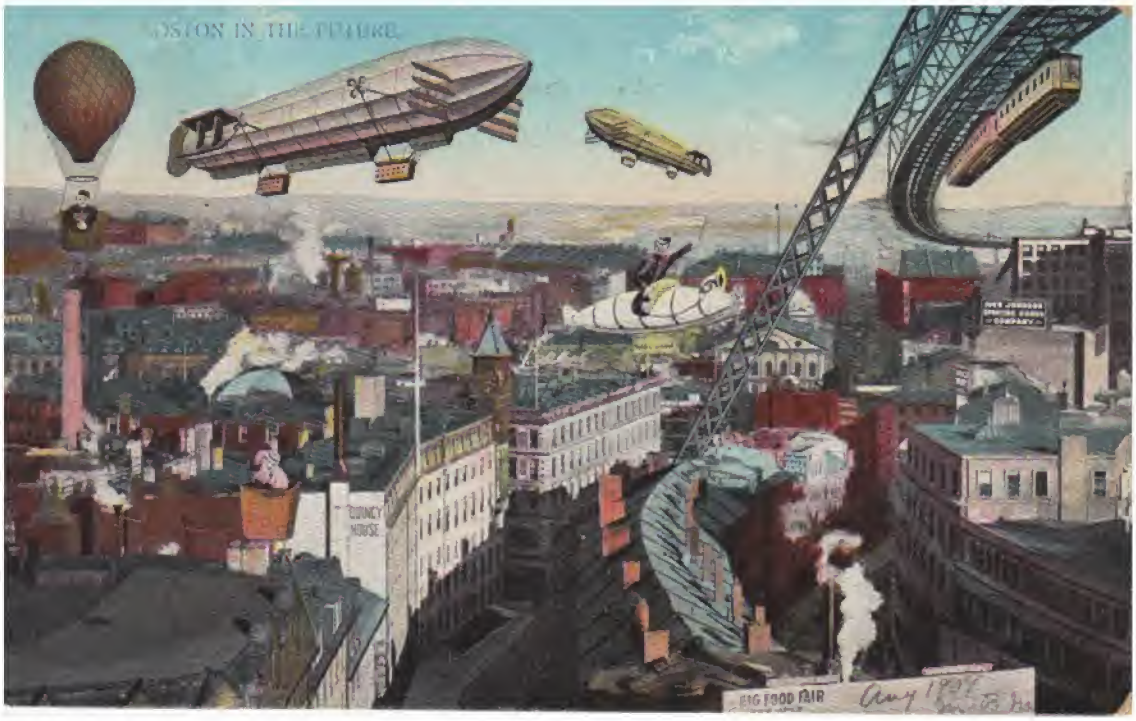


Postcard circa 1900 depicting Boston's South Station in the future

boston to the future

by William Ball

There's plenty of talk about "the future" in Boston. From tech incubators, to lecture halls, to the offices of the Financial District, this old city vibrates with predictions about what the future will hold. But this is nothing new, no sign of our new era. Here are three stories about trying to predict the future in Boston, what those predictions looked like and how they shaped our present world, often by accident.



Postcard from 1909 depicting the city of Boston in the future

I. Antique Hyperreality

The pinnacle of analog arrival/departure board technology was the Solari "split flap" board. Built through the mid-1990's by the Italian company Solari di Udine, they were iconic, hanging above train stations and airports from New York to Kolkata, click-click-clicking through stacks of names and numbers in quick time. Being iconic, however, doesn't spare a technology from change. These days, only a few analog Solari boards remain in operation (in Providence, Philadelphia, London, not many more), having been replaced by quicker, more flexible, digital boards. Such change isn't unreasonable, though it hurts the nostalgic among us.

Boston's South Station replaced its Solari board in 2006. The interior of South Station is cavernous, a wide open concourse with lacing metal beams across the ceiling. The new, LED board is proportional to the space, tall and wide and silently cycling through the names of New England towns I've spent my life passing through.

There was a catch, though. The space and its bustle make announcements hard to understand. The silent board can tell you where you're going and when, but only if you're paying attention. That unmistakable, analog clicking of a Solari board was a subtle reminder to check for your train and the sound was directional, drawing your gaze where it needed to be. Not merely formless nostalgia, the lack of analog noise from the slick digital board meant that people were missing trains. So, the MBTA did the common sense thing; they started piping mechanical clicks through the sound system whenever the LED schedule updates, mimicking the analog technology. So often "progress" is synonymous with "efficiency," we risk forgetting what both mean.

We're bad at predicting the future, but you already knew that. We're in flux, constantly remembering and forgetting our limited capacity to imagine what the world will look like. Still, our predictions have the power to change things, for a time, in limited ways, either by sheer force of will, or some larger cultural shift. Thus, we live in a world of unintended consequences. Accidental convergences and externalities become foundational. Things we think vital are often disposable, things we've never given a second though to are often all too necessary. A modern digital display mimics the mechanical churn of its predecessor, which is petty but telling. The world is full of these missteps and they congregate closest where the old stands beside the new. Perhaps nowhere in America is more telling than Boston.

II. Blimps, Trains and Automobiles

For all the interior alterations, the exterior of South Station remains admirably unchanged. There's a bus terminal affixed to it now, the plaza outside contains some glass pyramids covering entrances to the T, but otherwise the station is largely the same as illustrated [above], in 1909.

The timelessness of South Station isn't what's striking about that illustration, though. Look up there, again. There are blimps, sure, hot air balloons, representatives of cutting edge, pre-wing technology. There's even a personal blimp, an idea whose day has only just come, courtesy (perhaps not coincidentally) of a Massachusetts based company called Skyacht. There are balloons and blimps, but no cars. Down on the left, a horse pulls a cart beneath the sky scene. Illustrators are no better than sign-makers at predicting the future.

Automobiles had been around for some time by 1909, but they weren't in vogue. They were rickety and expensive, though not so much that it made them fashionable. Anyway, they were small. Visions of the future, then, had their sights set somewhat bigger. In the long view, or the wide of view of history, what you can't see is the real progress that was being made.

In 1914, from November 16th to the 19th, Boson held its first ever "Electric Motor Car Salon" at the Copley Plaza hotel. Prohibited from advertising their wares outside of the official catalog, 10 inventors, including Massachusetts native S.R. Bailey, displayed their all-electric cars, separate from a distinctly in opposition to the gas-powered automakers with whom they were usually paired.

The previous February, Bailey had (allegedly) driven his "Electric Roadster" from Boston to Chicago. The feat was such that it merited its own "visions of the future" article in the "Electric Review and Western Electrician," along with some glowing predictions from one Dr. C.P. Steinmetz:

"...[T]he great share of the automobile future belongs to the electric and [Steinmetz] predicted that as the ultimate economy and efficiency of electrics are developed the gas car will necessarily recede...The automobile, he said, is still largely a creature of sporting proclivities, but is fast changing into a practical business utility...The car of the future, he said, is bound to be a car which everyone can own and run without effort..."

Incredibly prescient, except it happened the other way around. Of course, the effort of owning and running an electric car is a (perhaps, THE) major impediment to their adoption, these days. It's a problem of infrastructure, of power outlets and time and battery capacity. It's something nobody ever planned for, though they've had nearly 100 years to.

Those kinds of infrastructural problems are why the transportation in hypothetical, future Boston looks so radical. Boston wasn't made to hold so many people as it does today, or so many people as it held in 1909. In fact, Boston wasn't really "made" at all, more like pieced together, built and burnt and squabbled over. Boston's early embrace of public transit, from the horse drawn "omni-bus," to the first subway in America, was driven by a complete inability to get anywhere otherwise. Eventually, the public transit itself became an issue.

"...By the 1880's, Boston's Tremont Street had become so clogged with streetcars that the wags of the day retorted that it would be much quicker for a passenger to climb onto the roof of their trolley and walk over roof tops of stalled vehicles to reach their destination."

-- from the official MBTA website, "The Rapid Transit Commission and the BERY"

Hence, the peculiar kind of "elevated rail" shown in the illustration, upside down from the modern T. To get around, you had to get off the street, above it. Hence, blimps. Of course, blimps are still with us. Till very recently, the Hood blimp was a fixture above the city, aloft whenever the Red Sox played at Fenway. Less airship than floating billboard, the turn-of-the-20th-century technology remains and seems perennially poised for resurgence. "The 'airship renaissance' has always been just around the corner ever since the end of World War II," in the '50s, again in the '70's, again and again. That's Joseph Dick, writing a blog post for Scientific American in 2011. So, we wait for the blimp resurgence. We can't plan these things, though we try.

"It has ever been unfortunate that the growth of Boston from its inception has been unanticipated; but in future [sic], comprehensive plans will doubtless be had and heeded by the proper Commissioners..."

-- Anonymous, "Boston in the future: its park grounds and grand avenue through the city..."

III. Urban Renewal

No blimps dock atop Boston's City Hall, though they might as well. The building comprises 5 levels of cantilevered concrete brutalism, stacked smallest to largest, like an upturned wedding cake. Designed by Kallmann, McKinnell & Knowles in 1962—and completed in 1968—it's what academic architects, inspired by Swiss architect Le Corbusier (nee Charles-Édouard Jeanneret), thought the future would look like.

Instead, the Boston of early 2012 remains much more like Boston of the 19th century than Kallmann, McKinnell, Knowles, and Le Corbusier's modernism.

"We distrust and have reacted against an architecture that is absolute, uninvolved and abstract. We have moved towards an architecture that is specific and concrete, involving itself with the social and geographic context, the program, and methods of construction, in order to produce a building that exists strongly and irrevocably, rather than an uncommitted abstract structure that could be any place and, therefore, like modern man— without identity or presence."

—Noel Michael McKinnell and Gerhard Kallmann. from Paul Heyer. Architects on Architecture: New Directions in America. p. 260

The city hall is certainly "specific and concrete," though history belies the idea that it's involved "with the social and geographic context." To build it and its surrounding plaza, and entire neighborhood was bulldozed. Centered around the former Scollay Square, the neighborhood was, among other things, the red light district of Boston and it can be seen, intact, in that second postcard. Everything to the left of that great, curved building on the lower right and in front of the classical-looking Faneuil Hall in the background was flattened to create that strong, irrevocable, identifiable building as part of an "urban renewal" project.

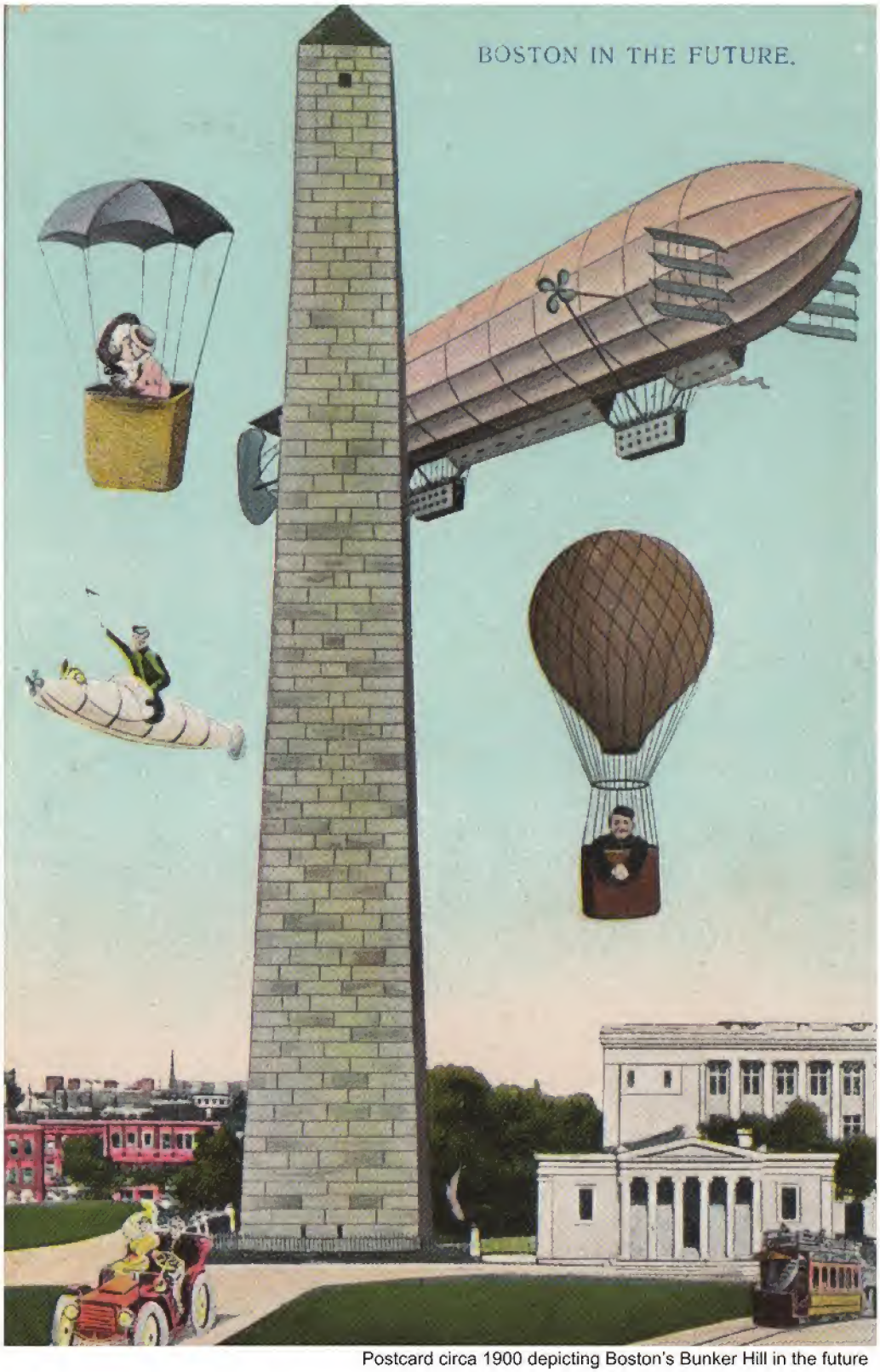
Title 1 of the U.S. Housing Act of 1949 provided funds to cities in return for refurbishing "blighted" urban areas, which could mean anything from working class neighborhoods to red light districts. Scollay Square was both, though it had never been immune from change. Like so many others in Boston, the neighborhood had undergone several complete transformations in the decades before it was rubbled. A short pamphlet, written in 1902, documenting the history of the building at 47 Court St. tells the story nicely. The neighborhood, which began as home to wealthy military and merchant families, slowly modernized:

"In many cases, the modern edifice itself has been superseded by one still more modern, until a man not much beyond middle age looks in vain for any reminder of the Court St. of his boyhood…When Court Street, no longer desirable for residences, entered upon the transition period through which all our city streets seem doomed sooner or later to pass, not a few of its old dwelling-houses became boarding-houses... But at length the boarding-houses were compelled to give way before the encroachments of business, and in the early thirties various trades and callings were installed…After some fifteen years of this tenure, these various trades and occupations gave place in their turn to the lawyers…"

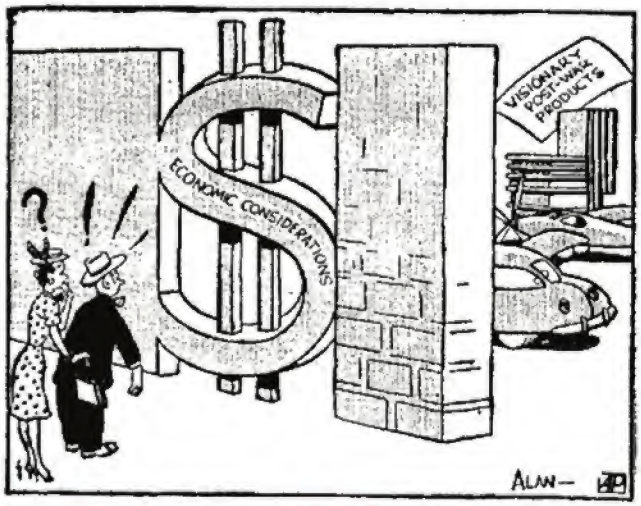
-- John T. Hassam, "47 Court St., Boston"

It wasn't a grand idea like urban renewal that prompted the various turnovers of tenants and buildings, but simple adaptation. It was, however, urban renewal that finally demolished 47 Court St. An area that had evolved, as organically as construction can, was swept aside in favor of a pre-fabricated future, a manifest set of faulty predictions, lacking the force to make themselves true.

We try to make time happen, force it along like we divert rivers and the problems with this approach should be very obvious. Not that the future is impossible to plan, just that it's infinitely more complex than we give it credit for. Not that the world doesn't change, or shouldn't, just that progress has been mostly invisible, hidden, too small to be legible in the resolution of architecture, or urban planning, or airships, or sign making. Or, for that matter, illustration.

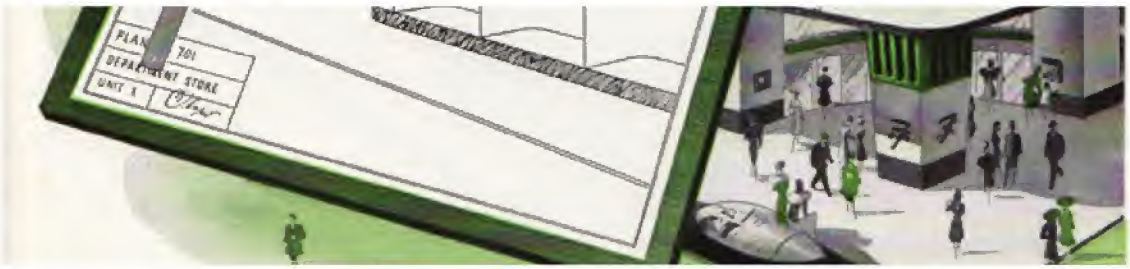


Postcard circa 1900 depicting Boston's Bunker Hill in the future



after the war

American companies during World War II often stressed sacrifice in their print advertising. If we can all just be patient, they promised, we'll have more televisions and personal helicopters and push-button kitchens than you can shake a rocket car at. The June 24, 1945 *San Antonio Express* ran an article by Associated Press science writer Frank Carey that looked at the futuristic post-war products Americans were being promised. Dissecting a Labor Department report, Carey describes what it would take, with the end of the war, for these products to see the light of day.



Dresses made of aluminum mesh...

Bathtubs made of plywood...

Transparent refrigerators made of plastics...

Automobiles with magnesium engine and body parts...

Such visionary products of the post-war world are either in the design or experimental stage, or they're being talked about as possibilities.

But the extent to which they might come into use depends upon various factors. Not the least is the dollar sign.

Discussion of the post-war outlook for such war-developed materials as polastics, aluminum, magnesium, plywood and synthetic rubber, is contained in a report made by the Department of Labor's bureau of statistics to the Senate subommittee on war mobilization.

The latter group, a brand of the Senate military affairs committee, described the report as "the first comprehensive statement of wartime developments."

The extent to which these new materials will be generally adopted is difficult to foretell," says the report.

"It is apparent that many of them will find larger markets than in the pre-war era period, but it is also virtually certain that not all of the facilities built during the war for the production of these materials will be needed. Comparisons of costs of various materials, which have not been of the greatest signifcance during the war, will again become important when peace returns."

And the report adds:

"The costs of production for these newer materials will be influenced not only by purely economic factors but by many political considerations.

"Of primary importance will be the policies followed in the disposition of government-owned facilities. For some materials, notably synthetic rubber, much will depend on the policies adopted with respect to foreign trade.

"Many of the new materials will compete with each other as well as the older materials for particular uses -- for example, plastics, aluminum, magnesium, and plywood."

The Labor Department's glance into the future was part of a comprehensive study of some 1400 technological developments made in various fields during wartime.

Of plastic, this picture was given:

Special qualities of plastics, such as transparency and resistance to chemical action, will fit them for varied uses in industry, the laboratory and the home. Continued use of plastics for structural parts and other articles in aircraft and automobiles is expected.

And years after the war, we may even see automobile bodies made entirely of plastics.

On the other hand --

"The future of the plastics industry will be governed largely by economic factors," says the report. "The price per pound of most plastics remains higher than that of many materials with which plastics compete.

"Despite the fact that articles of plastics are usually lighter than those of metal and that economies may be affected in fabrication, the price differential between plastics and, for example, steel is so great as to discourage large-scale substitution.

"There nevertheless remains a multitude of applications in which plastics are highly economical, because of special properties not elsewhere attainable or because of great savings in fabrication time and costs.

The report points out that the production of aluminum and magnesium expanded tremendously during wartime and says both materials may come into greater use in the future.

While the annual production of magnesium before 1939 was 4,000,000 pounds, production in 1943 was 368,000,000 pounds and the nation has production capacity for much more.

Indicated uses for aluminum, the report says, are for buses, automobiles, passenger ships and for the manufacture of household appliances, furniture, bicycles and burial caskets. But most uses, it adds, "are contingent upon a suitable adjustment of the price of aluminum relative to that of stainless steel, plastics, magnesium or other competing materials."

Desings have been prepared for automobiles with much aluminum in engine and body, "but the large-scale application of these designs will probably have to await further development of inexpensive mass-production methods of working with the metal."

The outlook for plywood in the post-war world "is promising" says the report, but it, too, will have to cope with competition."

Among possible uses are private airplanes, lightweight box-cars, prefabricated chicken houses and automobile bodies.

the moon as mistress

by trent m kays

In 1966, Robert Heinlein published a book, originally serialized in *Worlds of If*, titled *The Moon Is a Harsh Mistress*. It was a book about a revolution on the Moon led by a dashing professor who was exiled from Earth. It is a wonderful tale about romance, a sentient machine, politics, education, life, and liberty. Even so, it seems to be one of Heinlein's lesser thought of works, often taking a back seat to some of his other books: for example, *Stranger In a Strange Land* or *Time Enough for Love*. However, *The Moon Is a Harsh Mistress* will always have a special place in my heart, as it was the first science-fiction novel I ever read and kept on my bookshelf.

An artist's 1971 concept illustration depicting the Apollo 14 Command and Service Modules (CSM) circling the moon as the Lunar Module (LM) heads toward a lunar landing.

Heinlein's *Mistress* still sits on my bookshelf, where it keeps company with some more haughty academic texts, like Jacque Derrida's *Of Grammatology*. Heinlein's *Mistress* was the first book that made me believe in something greater than myself, so I think it only fitting that it has a place above all the other books that grace my overburden bookshelves. The book introduced me to something for which I was probably too young: the future. It gave me a glimpse of something I thought would be real, something I thought would lead me to glory, and something I thought would make me noteworthy.

Heinlein's *Mistress* made me believe moon colonies would exist, and I, at the time a 13-year-old boy, would lead those colonies into revolution to overthrow the imperial and dictatorial actions of a greedy Earth government. Obviously, it did not happen, but it does lead me to wonder how Heinlein envisioned our species' future. The 1960s was surely a time of wonderment as the Space Race consumed the attention of the United States and Soviet Union, and even though Heinlein's *Mistress* was published three years before Apollo 11 landed on the Moon, somehow, I think Heinlein must have known the future of our species, and he must have known we would reach into space for part of that future.

Science-fiction authors seem to know the future of humanity more than any other group of people in that they dream big dreams and do not let our current reality cage them into certain modes of thought. I wonder what Heinlein thought about moon colonies. Did he believe them achievable in his lifetime? Or, perhaps, my lifetime? When I was 13, these questions dominated my mind as I read through Heinlein's book. I wanted so badly to be a dashing college professor who led a revolution on the Moon. Perhaps it was the dream of an ill-informed and little-lived boy, but it was nonetheless my dream, and I think a small part of me still hopes it happens.

NEW **DEPARTURES OF TOMORROW**

TOMORROW: You dictate! The machine types and hustles your letters to the mail. Electronics does it all.

TODAY: In dictating instruments, New Departure ball bearings contribute to compactness of design and operating efficiency. They hold moving parts in alignment—reduce wear—require no upkeep.

Think of dashing through your correspondence with this imaginary scribe! It converts your voice into electronic impulses which **type, micro-record, fold, insert, seal, address and stamp letters** almost as fast as you can dictate!

It's just a notion now! But when some foresighted engineer works it out, you can bet New Departure will be called in to design the right ball bearings to keep these intricate parts working smoothly. New Departure works with engineers right from the planning stage to develop the exact bearing for even the newest departure in design.

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONNECTICUT

GM GENERAL MOTORS

NEW DEPARTURE

BALL BEARINGS

NOTHING ROLLS LIKE A BALL

Now that I am a college teacher and writer, I can't help but wonder what my life would be like was I a professor on the Moon. Would I be a professor at the University of Luna? Would I be a famed rhetorician and writing teacher? I don't know, but I can dream. I imagine my university webpage would read:

Trent M Kays, PhD
Professor of Lunar Rhetoric
University of Luna
Armstrong City, Moon Colony

Next to the description, people would find a smiling photo of myself in my office overlooking the Sea of Tranquility. I would meet with students daily, and we would talk about their work and sip tea. My days would be filled with picturesque views of the Earth and grading papers before heading home. When I was 13, I wanted that life.

I was promised moon colonies, space travel, and revolution. The first doesn't exist, the second barely exists, and the last will probably never again happen in America, given the lethargy of its population. I was fed a lie, and it hurts a little.

But, what can I do? I live on Earth, and it is a beautiful planet. Yet, something is missing. It is a lust for lunar revolution, which first wetted my appetite as a boy. The same passion and national awe that once took hold of people for space exploration seems to be gone. It left and smashed the dreams of many people, including my own. It took those exciting and, sometimes, dark visions of the future and dashed them upon the rocks.

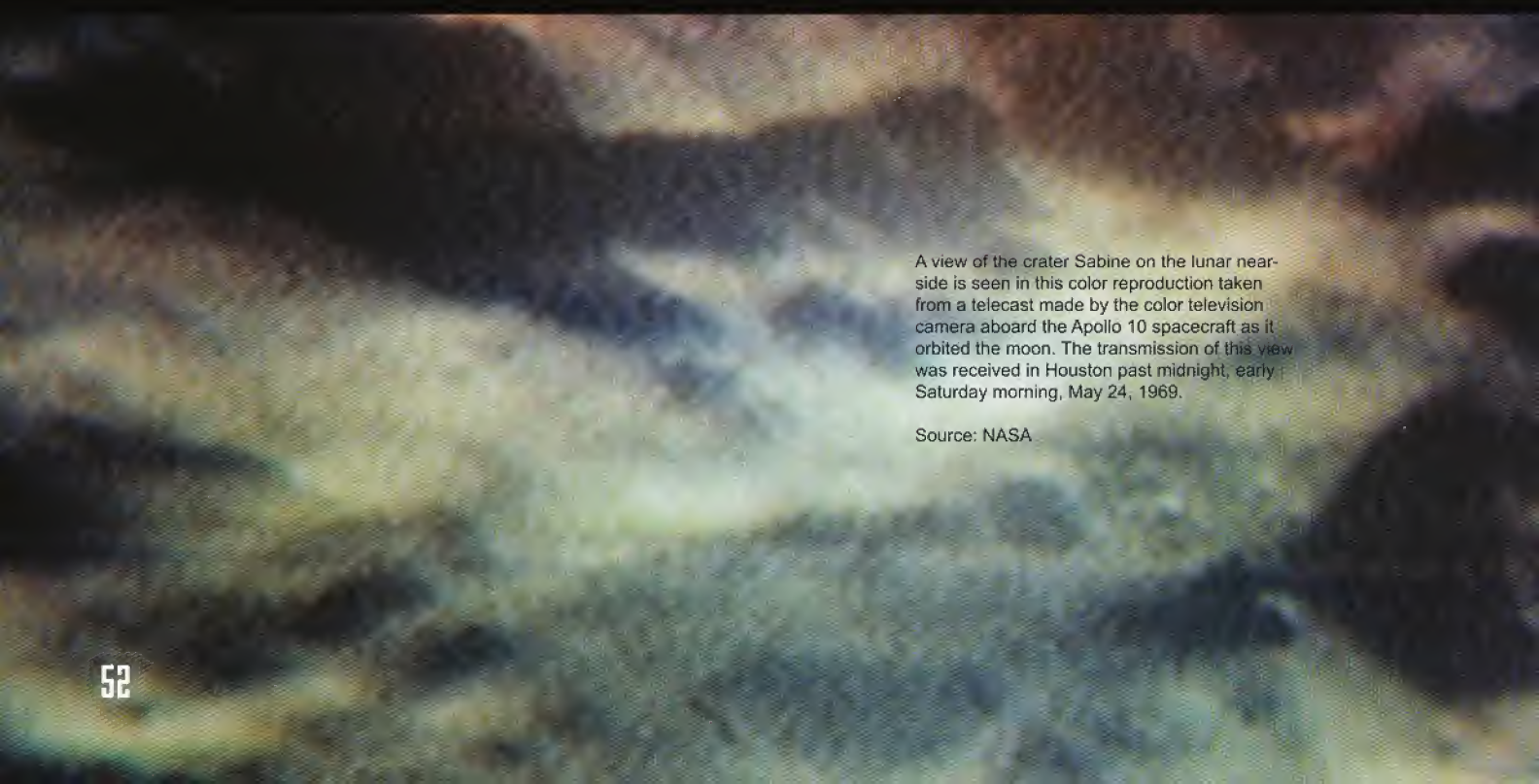
What does Heinlein's vision tell us? It tells us that without someone to compete against, we don't really care for humanity-advancing predictions. I find this sad because I wanted to be a revolutionary lunar rhetorician, a teacher who leads a fight against tyranny and frees an entire moon from the grasps of a power hungry planet. Unfortunately, that dream is now in the past. My dream is nothing more than my past tense future, a vision that was Heinlein's and one I adopted as my own, and it has faded.

Though, I do wonder if perhaps Heinlein's *Mistress* will become history as humanity moves forward through the 21st, 22nd, and 23rd centuries. Space still has a small allure among a small population and time doesn't stop. It moves forward with an unstoppable will. So, maybe, humanity's passion for space exploration and colonization will grow once again, and while we definitely know the Moon isn't made of cheese, we do not know how our future generations will thrive in Heinlein's *Mistress* and his vision of underground lunar metropolises.

Indeed, Heinlein's vision for the future has fallen short of what humanity is capable of. We are capable of so much more than what we are, and while I'd love to be a professor of rhetoric on the Moon, I fear, much like many science-fiction tales, humanity will corrupt that which is pure and lead existence to a new level of degradation. Maybe it's good that humanity hasn't reached the level of space colonization.

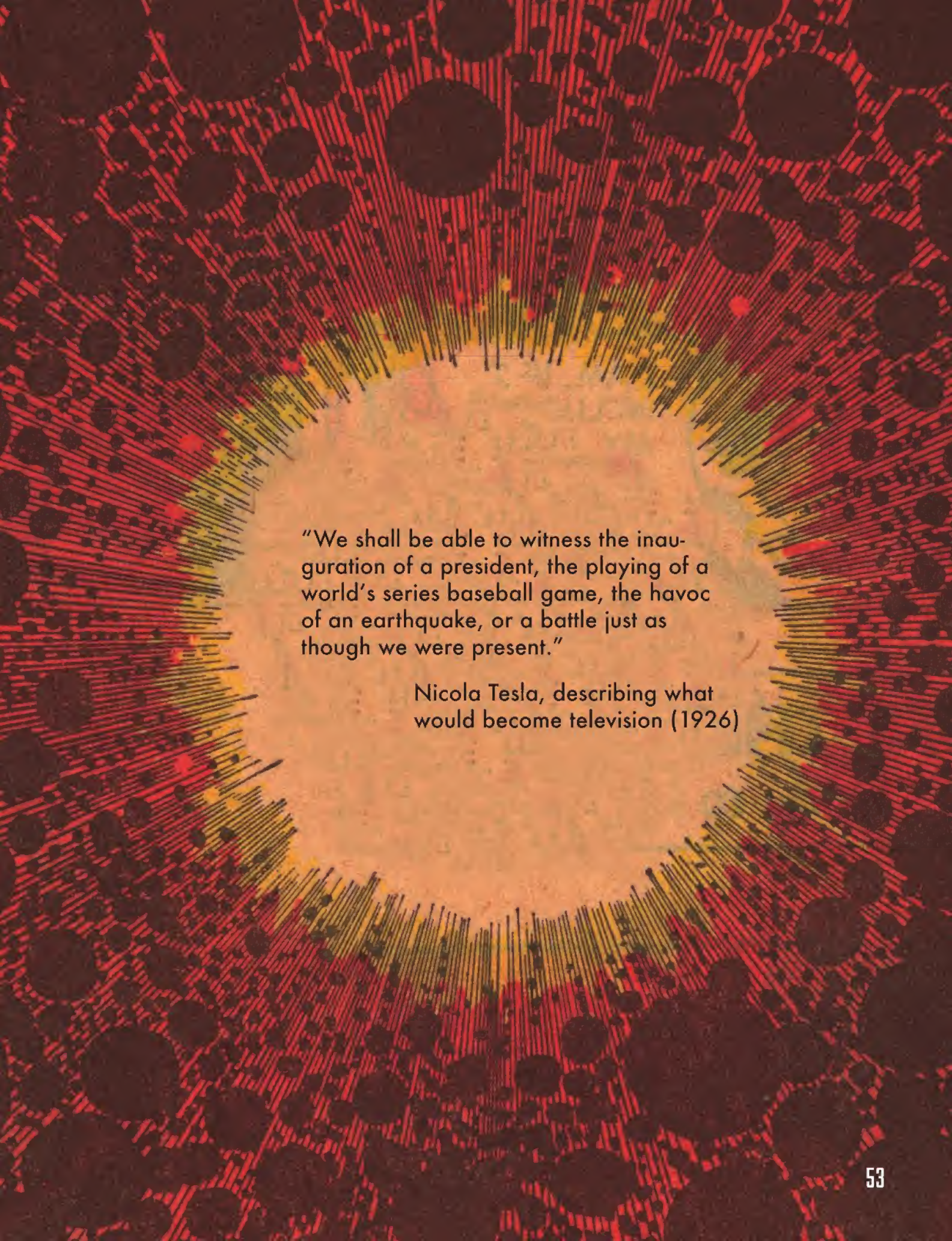
It still bothers me that I'll never be able to fully realize my boyhood dream. Sadly, the past often promises a future that the future cannot believe was promised. I guess those past futurists, science-fiction authors, and dreamers were wrong about our future, or, at least, they are presently wrong.

I suppose today's present will just have to do for yesterday's future dreams—for now.



A view of the crater Sabine on the lunar nearside is seen in this color reproduction taken from a telecast made by the color television camera aboard the Apollo 10 spacecraft as it orbited the moon. The transmission of this view was received in Houston past midnight, early Saturday morning, May 24, 1969.

Source: NASA



"We shall be able to witness the inauguration of a president, the playing of a world's series baseball game, the havoc of an earthquake, or a battle just as though we were present."

Nicola Tesla, describing what would become television (1926)

LOVE IN THE TIME OF ROBOTS

BY RACHEL JAMES

Since the birth of science fiction, our imaginations have been captivated with the idea of social humanoid robots. Before becoming an organized field of study in the 1980s, synthetic humans had been popping their perfectly shaped heads up in literature, art, and film for decades. Fascinated with the concept of creating someone in our image that is lacking our foibles, androids were stars of the sci-fi digests of the Golden Age. A humanoid unfettered with messy emotions seemed the perfect solution to pesky human shortcomings such as fear, anger, and impulsiveness.

While the practical uses for such a creation could include scratching mankind's ugly itch to enslave others by creating robot servants, or a solution to the complications of war with military employments, the application we always seem to come back to again and again is companionship.

A typical android love story basically goes like this: Man loves wife. Man reflects on her beauty, loyalty, and obedience. Wife gazes lovingly and sadly, implying they soon must part. Man breaks it to wife/reader/self that she is merely a machine, and her warranty is up. Wife shows fleeting signs that perhaps she has actually learned to feel, and is truly experiencing love/betrayal/grief. Man steels himself and pushes the off button, as their love and life together was never real. Reader feels a deep sense of loneliness, and reflects on what it truly means to be human. Reader gets trapped in the existential, mucky quagmire of what constitutes real love and emotion, and what the difference between authentic feeling and artificial feeling could possibly be.

Without going too far down the wacky road of relationships or analyzing the sexes, I think it's fair to say that when it comes to fantasizing about settling down with a nice android, it's often men who entertain this idea to the fullest. Since science fiction began, many robots and androids took on the persona of beautiful, obedient, yet ironically never fully accessible women. Now that synthetic humans are a reality, it seems these pulp fiction fantasies are coming to life, so to speak. With the creation of increasingly realistic robots and the invention of the popular, freakishly anatomically correct RealDoll, we can now truly test the waters regarding whether a replica of a woman is better than no woman at all.

The "RealDoll", is a synthetic human designed to mimic the texture, appearance, and weight of a person. Mostly sold in female form as sex toys, RealDolls have taken android love straight out the pages of Analog and Amazing Stories and into nerd beds worldwide. There has been an increasingly bizarre amount of growth in a new community of men who, despite the obvious sexual implications, have decided to live with their dolls as life partners. They dress them, photograph them, and have one-way dinner conversations to wile away the lonely days. While not the walking, talking synthetic dream girls of stories past, with robotics and A.I. evolving at break-neck speeds, it could be merely a handful of years before true android women could flood the public market.

In early science fiction, when synthetic love was theoretical, the ending was often tragic. The promise of blind, trustworthy companionship was always tempered with the futility of trying to instill that which is truly human into a machine. Despite man's yearning for simplicity in solving the heartbreaking issue of loneliness, the lesson remained that nothing could replace a woman's emotional warmth. This is the human condition that forces us to suffer so, despite our quest to fix it with technology. Now that people are actually able to attempt this sort of partnership, time will tell if synthetic women are a band-aid to the human wound of isolation, or just a really fancy way to masturbate the body and minds of men unable or unwilling to deal with the real thing.

PALEOFUTURE

"The thought recorder is an instrument recording thoughts directly by electrical means, on a moving paper tape. Our illustration shows what a future business office will look like when the invention, which as yet only exists in the imagination, has been perfected. By pushing the button A, the tape is started and stopt automatically so that only thoughts that are wanted are recorded."

May 5, 1919 Electrical Experimenter

Photo of Thomas Edison from the Library of Congress circa 1870 to 1880

EDISON'S 21ST CENTURY

Miami Metropolis -- June 23, 1911

What will the world be a hundred years hence?

None but a wizard dare raise the curtain and disclose the secrets of the future; and what wizard can do it with so sure a hand as Mr. Thomas Alva Edison, who has wrested so many secrets from jealous Nature? He alone of all men who live has the necessary courage and gift of foresight, and he has not shrunk from the venture.

Already, Mr. Edison tells us, the steam engine is emitting its last gasps. A century hence it will be as remote as antiquity as the lumbering coach of Tudor days, which took a week to travel from Yorkshire to London. In the year 2011 such railway trains as survive will be driven at incredible speed by electricity (which will also be the motive force of all the world's machinery), generated by "hydraulic" wheels.

But the traveler of the future, says a writer in Answers, will largely scorn such earth crawling. He will fly through the air, swifter than any swallow, at a speed of two hundred miles an hour, in colossal machines, which will enable him to breakfast in London, transact business in Paris and eat his luncheon in Cheapside.

The house of the next century will be furnished from basement to attic with steel, at a sixth of the present cost -- of steel so light that it will be as easy to move a sideboard as it is today to lift a drawing room chair. The baby of the twenty-first century will be rocked in a steel cradle; his father will sit in a steel chair at a steel dining table, and his mother's boudoir will be sumptuously equipped with steel furnishings, converted by cunning varnishes to the semblance of rosewood, or mahogany, or any other wood her ladyship fancies.

Books of the coming century will all be printed leaves of nickel, so light to hold that the reader can enjoy a small library in a single volume. A book two inches thick will contain forty thousand pages, the equivalent of a hundred volumes; six inches in aggregate thickness, it would suffice for all the contents of the Encyclopedia Britannica. And each volume would weigh less than a pound.

Already Mr. Edison can produce a pound weight of these nickel leaves, more flexible than paper and ten times as durable, at a cost of five shillings. In a hundred years' time the cost will probably be reduced to a tenth.

More amazing still, this American wizard sounds the death knell of gold as a precious metal. "Gold," he says, "has even now but a few years to live. The day is near when bars of it will be as common and as cheap as bars of iron or blocks of steel.

"We are already on the verge of discovering the secret of transmuting metals, which are all substantially the same in matter, though combined in different proportions."

Before long it will be an easy matter to convert a truck load of iron bars into as many bars of virgin gold.

In the magical days to come there is no reason why our great liners should not be of solid gold from stem to stern; why we should not ride in golden taxicabs, or substituted gold for steel in our drawing room suites. Only steel will be the more durable, and thus the cheaper in the long run.

Maggie Koerth-Baker

Before the Lights Go Out: An interview with Maggie Koerth-Baker

Maggie Koerth-Baker is the science editor at Boing Boing and author of the new book, *Before The Lights Go Out: Conquering the Energy Crisis Before It Conquers Us*.

Paleofuture: How did you become interested in climate change issues?

Maggie Koerth-Baker: Honestly, I think of climate change and energy as two related, but independent problems. Climate change is something that I've just sort of slowly woken up to over the years. I think a lot of people have had similar experiences. It's a combination of seeing the way climate has changed around me since I was a child, hearing about it in the news, and then starting to do some reading that showed me this is something we must and can tackle. In fact, we've done that before successfully with issues like acid rain, air quality, and the hole in the ozone layer. Realizing the impact we've been able to have on those things, and that we accomplished that impact for far less cost than anyone had guessed, made tackling climate change seem more possible to me.

As for energy, I got interested in that largely because of my husband, Christopher. He's an energy analyst on commercial buildings. Basically, his job is to make them as energy efficient as possible for the least amount of money. Over the years, just from him talking about this stuff at home, I realized that I'd amassed a lot of information about how energy works and how that affects greenhouse gas emissions. More importantly, I realized that this wasn't information that most people were clued into. It's background stuff that has a huge impact on how you piece together what you read in the newspaper, and how you make sense of a big, confusing topic. But nobody was really laying it out and connecting those dots. I decided to write a book about energy because I wanted to understand these issues better and I wanted to help other people understand them, too.

PF: What do you hope people take away from your new book?

MKB: There's a couple of things I hope I can help people come to grips with.

1) Energy change is essential and possible. Not only that, but it's inevitable. Our energy systems are going to change in the next few decades and we will be investing a lot of money into them. What we're talking about here isn't so much, "Do we leave this alone or change it?" Instead, it's more like, "Do we want some planning and control over what happens to us and what our money gets spent on?" And I think the answer to that should be, "Yes."

2) Energy change is difficult and expensive. This is not going to happen easily. It's going to take a lot of science and technology, a lot of political coordination, and a lot of willingness to consider new ways of living. That's all hard. But it has to happen.

3) Nobody gets everything they want immediately and no single solution is perfect. If we're going to make this happen then we have to let go of fantasy and ideology and focus on making our energy systems cleaner and stronger as quickly and as cheaply as we can. That will take working together on shared systems that incorporate multiple strategies and technologies. And it will take a willingness to accept situations, particularly in the short term, that aren't ideal. Energy change cannot happen as long as we're clinging to silver bullet solutions, dreaming of disconnecting everyone from society, or NIMBYing everything to death.

PF: As a kid what was your greatest hope for the future? Your biggest fear for the future?

MKB: As a kid, I think my hopes and dreams for the future were pretty self-centered. I wanted to be the first ballet-dancing, archaeologist, President of the United States. My fears followed that same kind of navel-gazing pattern. I'm not sure I really started thinking about the capital-F Future in broad terms until high school ... and then it was heavily tied up with my religious upbringing. The hopes and fears I had about the future as a teenager aren't particularly relevant to anyone who isn't really into a certain kind of evangelical Christianity. And they aren't particularly relevant to how I think about the world today.

PF: What most shaped your idea of what the future held?

MKB: Some combination of *Back to the Future Part II*, Time/Life books, and Russell S. Doughten's "A Thief in the Night" series of church basement films.

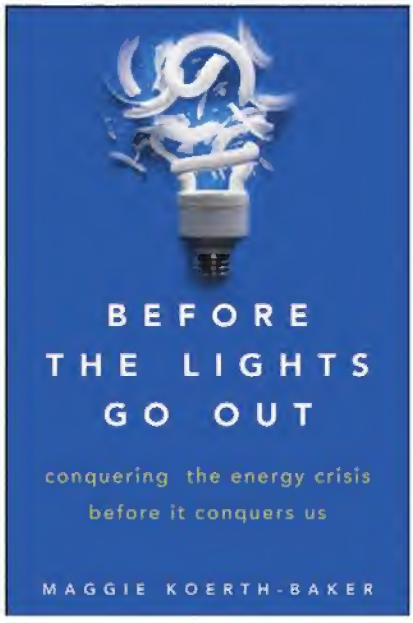
PF: Do you consider yourself optimistic or pessimistic about humanity's next fifty years?

MKB: I think I'd say that I feel realistic about it. We're already committed to a certain amount of climate change. We've dilly-dallied long enough that we're going to feel some of the economic impact of cheap oil becoming harder to find. And I know we won't follow through on every solution we are capable of implementing. A lot of people are going to be hurt in big and small ways. But we will mitigate some of those impacts, and we'll find ways to adapt to others. We'll change.

It won't be a utopia -- there will always be problems to be solved. But I'm not expecting us to fall into absolute worst-case-scenario world either. In fact, there's a whole genre of environmental pessimism that really bothers me, because it comes across as cheerleading for the apocalypse--like these people decided they hate the modern world and want to watch it burn. When you start talking about the "inevitable" collapse of modern civilization and how everyone will have to learn to live off the land, I think you're telling us more about yourself and your own issues than you are telling us about the future.

Maybe this is the after-effects of my religious upbringing talking, but I have a rule of thumb for worst-case scenarios: If somebody tells you they know the exact answer to society's big problem, that society will be too stupid to accept this perfect solution, and that the ensuing disaster will somehow spare the people who live exactly as this person thinks people ought to be living ... I don't trust them.

PALEOFUTURE



Dec.

25 Cents

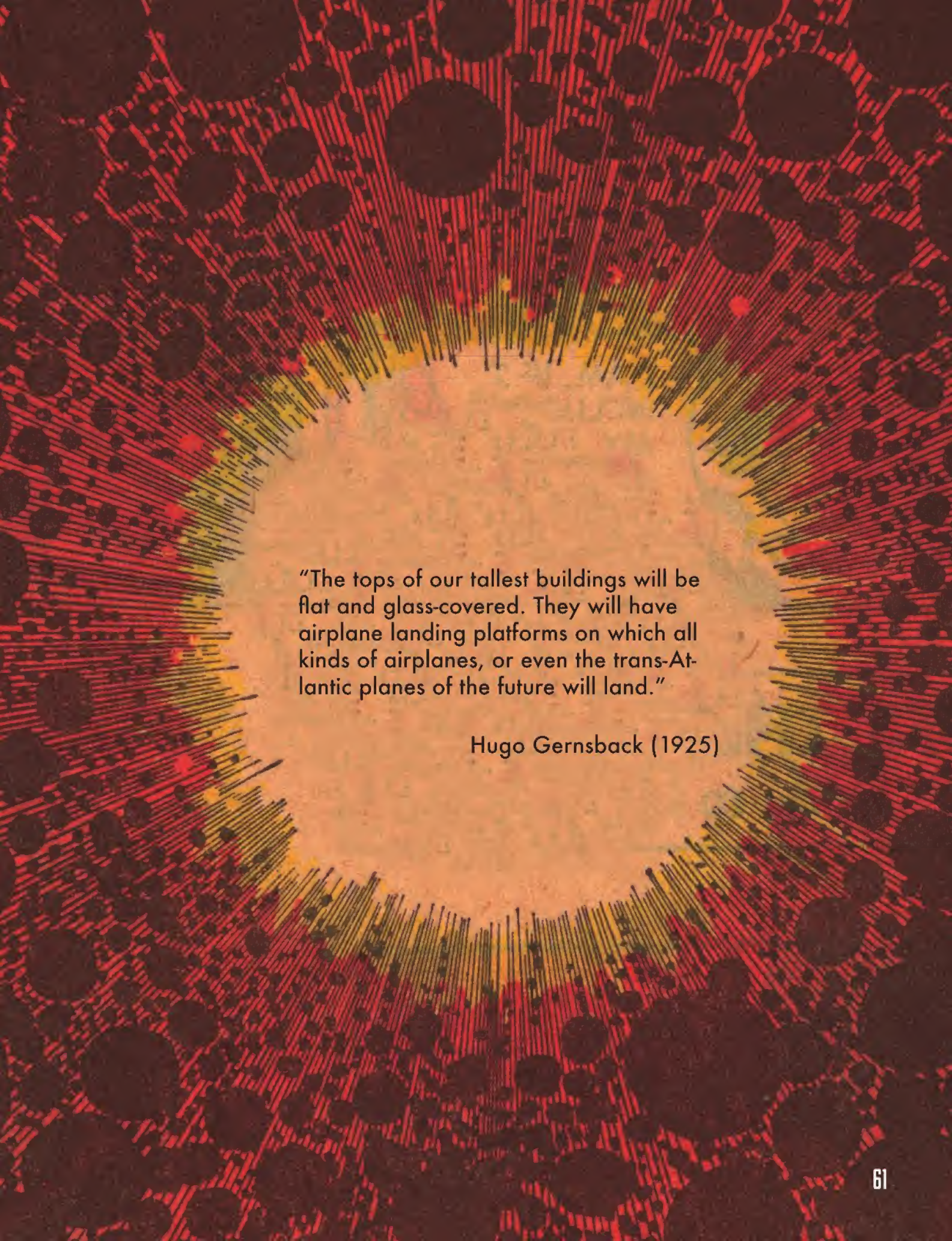
WRNY STATION

Science and Invention

HANDS CREATE RADIO MUSIC

See Page 694

December, 1927 issue of Science and Invention


"The tops of our tallest buildings will be flat and glass-covered. They will have airplane landing platforms on which all kinds of airplanes, or even the trans-Atlantic planes of the future will land."
Hugo Gernsback (1925)

MAKING MUSICAL MINCE MEAT!

BIFF, bang, crash! . . . The wheels turn . . . the cogs mesh . . . Canned Music fills the air!

And you, the music-loving public, buy your theatre tickets and sit there waiting IN VAIN for the old familiar, thrilling tuning-up of the orchestra . . . listening IN VAIN for Living Music which only living musicians can play.

The RESULT of canned music is inferior entertainment AT THE SAME COST to you.

Will you stand for it? Will you let the glorious Art of Music die in this country? Millions of others who love music are saying AND ACTING "No." Unite with them in the Music Defense League. Mail the coupon today.

AMERICAN FEDERATION OF MUSICIANS
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

Name .....

Address .....

City ..... *State* .....

THE AMERICAN FEDERATION OF MUSICIANS

(Comprising 140,000 professional musicians in the United States and Canada)
JOSEPH N. WEBER, *President*, 1440 Broadway, New York, N. Y.

THE ROBOT SINGS OF LOVE

THE ROBOT (singing): "O, soul of my soul, I love thee---"

BUT the Robot has no soul. And having no soul it cannot love. Small wonder the lady spurns its suit.

Now, if the Robot cuts a ridiculous figure beneath a lady's balcony, why expect IT to thrill intelligent theatre goers in the character of Canned Music?

* * *

Music is an emotional art. By means of it feeling may be translated into all tongues. The Robot, having no capacity for feeling, cannot produce music in a true sense.

You can join in rebuking the proposal that mechanical music is adequate fare for the American intellect by joining the Music Defense League. Sign and mail the coupon.

American Federation of Musicians
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

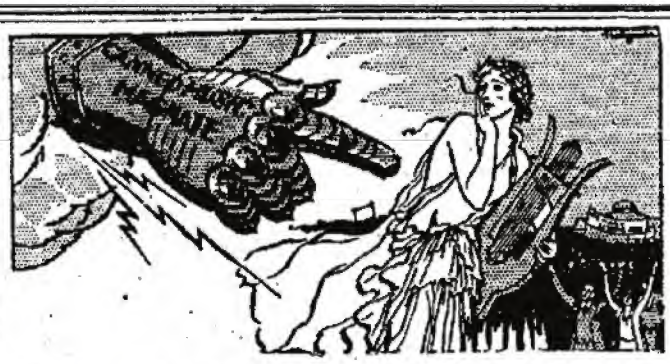
Name .....

Address .....

City ..... *State* .....

THE AMERICAN FEDERATION OF MUSICIANS

(Comprising 140,000 professional musicians in the United States and Canada)
JOSEPH N. WEBER, *President*, 1440 Broadway, New York, N. Y.



BANISH MUSIC?

"PLEASE don't," plead millions of theatregoers.

"Better not," warn wise showmen.

"Sure we will," declare industrialists who control canned music in the theatres. "The public can learn to like records as well as orchestras. Anyway, that's what they're going to get."

And so the issue is defined: Shall talking pictures be used as an excuse for reducing the theatre to a dehumanized museum (without reduction in admission charge). Or, shall the atmosphere of the theatre be retained and the cause of culture served through a victory for music?

Managers of high-class theatres recognize that real music is essential, and so they continue to provide it.

Others must be shown.

The Music Defense League, organized to voice the public's desire for real music, is approaching 2,500,000 membership. Each vote counts more today than ever before.

If you would like to see music restored to the theatres of your own home town, SIGN AND MAIL THE COUPON BELOW.

American Federation of Musicians
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

Name .....

Address .....

City ..... *State* .....

THE AMERICAN FEDERATION OF MUSICIANS

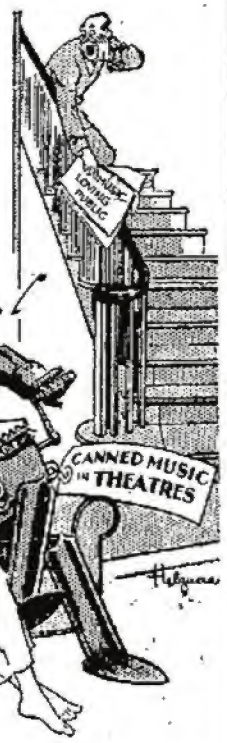
(Comprising 140,000 professional musicians in the United States and Canada)
JOSEPH N. WEBER, President, 1440 Broadway, New York, N. Y.

Above left: November 3, 1930 Syracuse Herald (Syracuse, New York)

Above right: August 17, 1930 Oelwein Daily Register (Oelwein, Iowa)

Right: April 28, 1930 Cumberland Evening Times (Cumberland, Maryland)

"When Is That Young Man Going Home?"



THIS unwelcome suitor has been wooing the muse for many dreary months without winning her favor. Patience of the household seems about exhausted.

If you, too, feel that the cause of human happiness would be better served by the return of Living Music to the theatre, you can help to hand the Robot his hat—just sign and mail the coupon.

American Federation of Musicians
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

Name.....

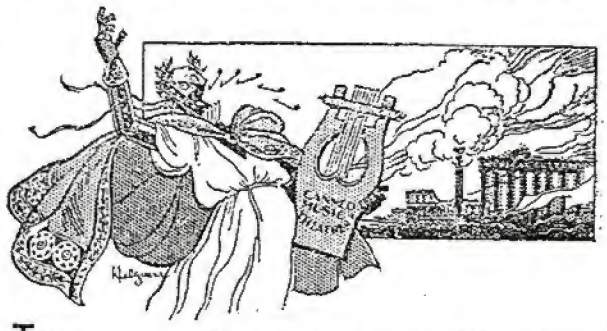
Address.....

City..... *State*.....

THE AMERICAN FEDERATION OF MUSICIANS

(Comprising 140,000 professional musicians in the United States and Canada)
JOSEPH N. WEBER, *President*, 1440 Broadway, New York, N. Y.

"FIDDLING" WHILE ROME BURNS



THEY say Nero "fiddled" while Rome burned. Probably just to show what a callous monster he was. Nero denied the story. Said he was out helping the firemen.

Really, it is difficult to believe that any *human being* could view such a frightful tragedy without emotion.

But the *unhuman Robot* can and does "fiddle" while the Art of Music starves—a human disaster of far greater consequence than the burning of Rome.

Those who believe that the Robot and his sponsors should be rebuked may join millions of others in the MUSIC DEFENSE LEAGUE by signing and mailing the coupon.

American Federation of Musicians
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

Name.....

Address.....

City..... *State*.....

THE AMERICAN FEDERATION OF MUSICIANS

(Comprising 140,000 professional musicians in the United States and Canada)
JOSEPH N. WEBER, *President*, 1440 Broadway, New York, N. Y.

THE "MEDDLESOME" SPRING SONG

THE ROBOT of Canned Music, in the role of Pan, piping a welcome to Spring!

Can You Imagine it?

Small wonder the birds and beasts are walking out on him.

Yet human beings, creatures of cultivated taste, are expected to accept the Robot's music as a fit substitute for the Living Art of Music in theatres!

Millions have dissented from this preposterous proposal by joining the Music Defense League. You, too, may vote for Living Music in the Theatre by signing and mailing this coupon.

American Federation of Musicians
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

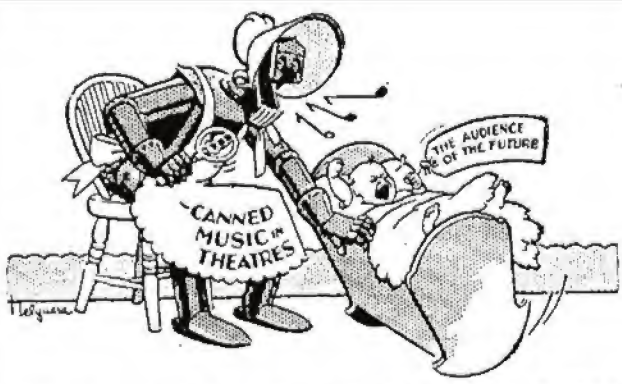
Name.....

Address.....

City..... *State*.....

THE AMERICAN FEDERATION OF MUSICIANS

(Comprising 140,000 professional musicians in the United States and Canada)
JOSEPH N. WEBER, *President*, 1440 Broadway, New York, N. Y.



THE ROBOT'S LULLABY

"And what's become of the 'Songs My Mother Taught Me'?" murmurs the infant, stirring from a nightmare. "I don't like this new nurse at all, and I want my really, truly mother back again."

Shall the soothing and refreshing inspiration of Living Music be superceded in our Theatres by the shoddy substitute of mechanical reproductions?

Music Lovers by the millions are saying "No!" to this preposterous imposition. The Music Defense League has grown amazingly during the past few weeks.

Now it's your turn to join your neighbors in rescuing the sacred Art of Music from machine-made debasement by signing this coupon TODAY!

American Federation of Musicians
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

Name.....

Address.....

City..... *State*.....

THE AMERICAN FEDERATION OF MUSICIANS

(Comprising 140,000 professional musicians in the United States and Canada)
JOSEPH N. WEBER, *President*, 1440 Broadway, New York, N. Y.

A MARRIAGE OF CONVENIENCE

THIS modern romance has its inception in the Canned Music Promoter's conviction that he could love anything that would reduce his overhead expense.

You see, if theatre patrons can just be persuaded to accept less than their money's worth in the theatre, this happy couple can prolong their cacophonous honeymoon.

But the music-loving public has failed to bless these nuptials as expected. The Music Defense League is voicing a vociferous protest against the substitution of Canned Music for Living Music in the Theatre. You may add your influence to this great movement by signing and mailing the coupon.

American Federation of Musicians
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of

Name .....

Address ...

City.....

THE AMERICAN FEDERATION

(Comprising 140,000 professional musicians in the U

JOSEPH N. WEBER, *President*, 1440 Broadwa

Left: January 5, 1931 Hagerstown Morning Herald (Hagerstown, Maryland)

Bottom: November 24, 1930 Jefferson City Post-Tribune (Jefferson City, Missouri)

THE SERENADE MECHANISTIC

NOW the troubadour had a great advantage over the Robot, for the Robot can't be gay any more than he can be sad or sentimental.

RECENTLY a master of inventors took a load off the minds of most of us with the assurance that "no one will ever invent a mechanical man who can think."

He might have added that no Robot will ever feel, either. And where there is no feeling, no emotional capacity, there can be no music.

Millions, realizing this truth, have joined the Music Defense League in protest against substitution of Canned Music for Living Music in theatres. If you feel the same way you can serve your own, as well as the public's, interest by signing the coupon at the right.

American Federation of Musicians
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

Name .....

Address .....

City..... *State*.....

THE AMERICAN FEDERATION OF MUSICIANS

(Comprising 140,000 professional musicians in the United States and Canada)

JOSEPH N. WEBER, *President*, 1440 Broadway, New York, N. Y.

Is the Robot Fooling YOU?

The Paris correspondent of "VARIETY" reports:

"The music-wise Continentals object violently to mechanical music (in the theatre)."

American Federation of Musicians
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

Name .....

Address .....

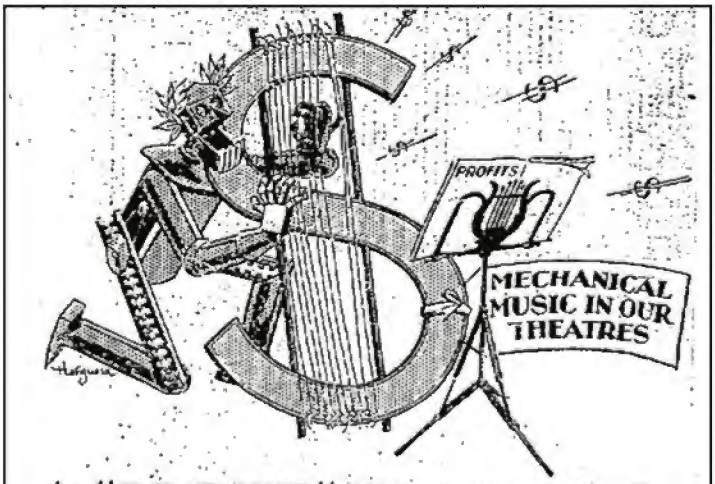
City ..... *State* .....

WHAT, then, if Europeans thus prove their "music-wisdom," are we North Americans supposed to be, that we are asked to accept mechanical music — and *mechanical music* only — in the theatre? Music-atimid, perhaps?

Well, at least 2,000,000 theatre patrons have rejected that characterization by joining the Music Defense League. They mean that they want Real Music, not Canned Music exclusively, in the theatre.

If you value the Art of Music, you too, should be numbered among the "music-wise." Just sign and mail the coupon at the left.

THE AMERICAN FEDERATION OF MUSICIANS
OF THE UNITED STATES AND CANADA
JOSEPH N. WEBER, *President*, 1440 Broadway, New York, N. Y.



A "PROFIT" Without Honor

"I'LL take the cash and let the credit go," says the expedient Robot. "I care for nobody, no, not I; and though nobody cares for me, I'll tell 'em it's Music I'm making and they'll have to agree with me!"

Millions of music lovers, however, are refusing to agree that the substitution of canned music in our theatres can ever satisfy their desire for the real thing.

If you, too, would share in saving the Art of Music from debasement, sign and mail this coupon. Membership in the Music Defense League gives you a voice in this vital matter without any further obligation.

American Federation of Musicians
1440 Broadway, New York, N. Y.

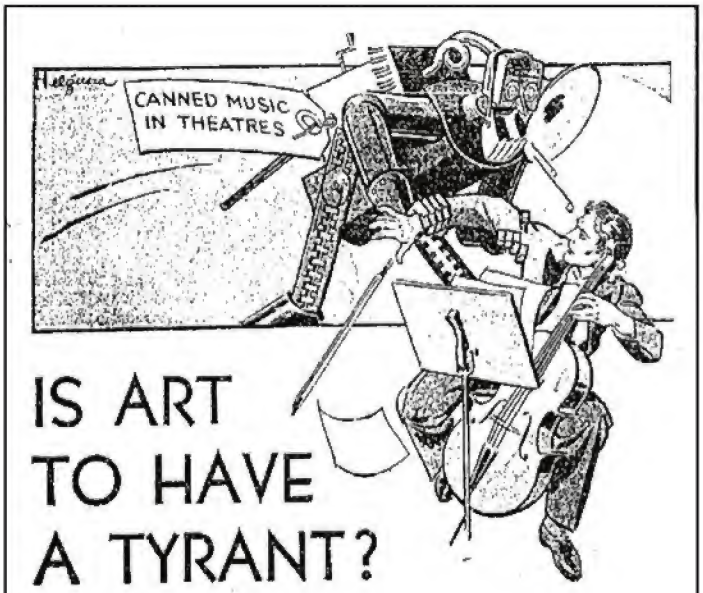
Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

Name .....

Address .....

City ..... *State* .....

THE AMERICAN FEDERATION OF MUSICIANS
(Comprising 140,000 professional musicians in the United States and Canada)
JOSEPH N. WEBER, *President*, 1440 Broadway, New York, N. Y.



IS ART TO HAVE A TYRANT?

THO' the Robot can make no music of himself, he can and does arrest the efforts of those who can.

Manners mean nothing to this monstrous offspring of modern industrialism, as IT crowds Living Music out of the theatre spotlight.

Though "music has charms to soothe the savage beast, to soften rocks or bend a knotted oak," it has no power to appease the Robot of Canned Music. Only the theatre-going public can do that.

Hence the swift growth of the Music Defense League, formed to demand Living Music in the theatre.

Every lover of music should join in this rescue of Art from debasement. Sign and mail the coupon.

AMERICAN FEDERATION OF MUSICIANS
1440 Broadway, New York, N. Y.

Gentlemen: Without further obligation on my part, please enroll my name in the Music Defense League as one who is opposed to the elimination of Living Music from the Theatre.

Name .....

Address .....

City ..... *State* .....

THE AMERICAN FEDERATION OF MUSICIANS
(Comprising 140,000 professional musicians in the United States and Canada)
JOSEPH N. WEBER, *President*, 1440 Broadway, New York, N. Y.

Above left: May 19, 1930 Bakersfield Californian (Bakersfield, CA)

Above right: September 2, 1930 Syracuse Herald (Syracuse, New York)

Bottom left: October 1, 1930 Portsmouth Herald (Portsmouth, New Hampshire)

eddie's flying car of 1924

Eddie Rickenbacker was a World War I flying ace. This was a time when the power of human flight was not that far in the rearview mirror and climbing into an airplane was intrinsically a daredevil experience. His 26 aerial victories were an American record not broken until the second World War. Rickenbacker was quite a futurist as well, saying in 1945 that he couldn't wait to see wireless electricity, frozen dinners, and plastic skyscrapers. Eddie's article at right ran in the July, 1924 issue of Popular Science magazine and told of the wonderful flying cars that were surely on their way.

"Flying Autos in 20 Years"

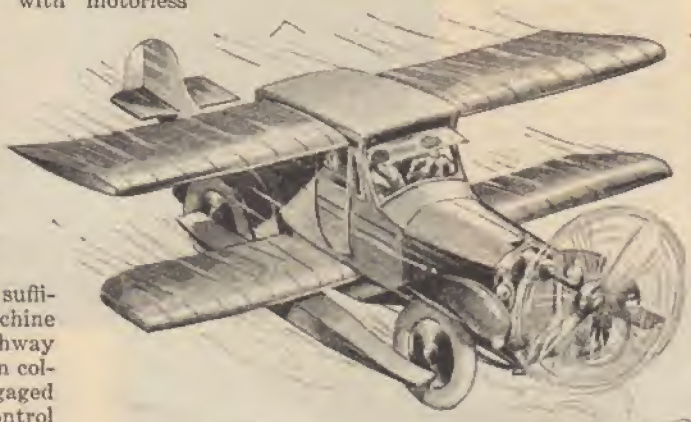
An Expert's Visionary Picture of Motor Travel in the Future

By E. V. Rickenbacker

Ace of Aces in the World War

WITHIN the next two decades autos will be made with folding wings, so that when on a straight stretch of road they can be spread and the machine will take to the air. The present-day tendency to lighten the construction of automobiles through the extensive use of aluminum alloys, without sacrificing the safety factor, and the great progress made in airplane construction as the result of recent experiments with motorless gliders, as well as motor gliders, are the two factors that will make this possible.

This combination automobile - airplane will have a body shaped similar to the present hydroplane hull, making it both a water and land machine. The wheels will protrude sufficiently to permit the machine to be driven on the highway after the wings have been collapsed, propeller disengaged and the automobile control mechanism applied, which in reality will give a three-in-one conveyance.



Our artist's conception of the automobile-hydroplane of the future as predicted by Capt. E. V. Rickenbacker. The machine would be equipped with folding wings for flight and with pontoons for water travel

IMAGINE the convenience of being able to drive around in the city, as is done nowadays, and then when you start for some other town and get on a straight of way or enter a near-by pasture, to unfold the wings on the machine and take to the air! It will mean quicker transportation for the suburbanite, for people living at a distance from a large city, and for the traveling salesman who now uses the motor car and highways to cover his territory.

Recent glider trials held throughout Europe have shown ways of increasing the lifting power, while reducing the spread of airplane wings. Further, it has been demonstrated that with properly constructed wings and properly designed motors it is possible to fly almost any type of fuselage.

The development of automatic safety devices to control flight will decrease the liability of accident. Today, flying is no more dangerous than motoring on the streets and highways—sometimes I think not as dangerous. However, people have a fear of flying that will have to be overcome just as they had to overcome their fear of traveling 20 miles an hour in the horseless carriage of 20 years ago.

Save in time of war, there is no need for stunt flying, and that is the only really dangerous part in flying. It is a good bit like driving through heavy traffic at 60 miles an hour—every one doesn't have the skill to do it.

Rigid rules will be laid down for flying, much the same as there are rules for vehicular traffic today.

In the combined automobile-airplane I see a machine that is not greatly different from the present-day motor car, except in its decreased size. The body will be narrower and shorter, to reduce weight, and will be of a modified streamline design. The engine will be made lighter and smaller, but with about the same horsepower as is used today through the use of a supercharger.

The wings will fold back against the sides of the car when driving along the street and will have sufficient span to lift the car off the ground at a moderate "take-off" speed. The 25-foot span that it is possible to build on the present-day motor-car—12½-foot wings on each side—will be sufficient to lift the lighter and more efficiently built machine of 1940.

How the flying roadster may appear if Captain Rickenbacker's predictions are fulfilled—a model built by Allen H. Russell of Nutley, N. J.

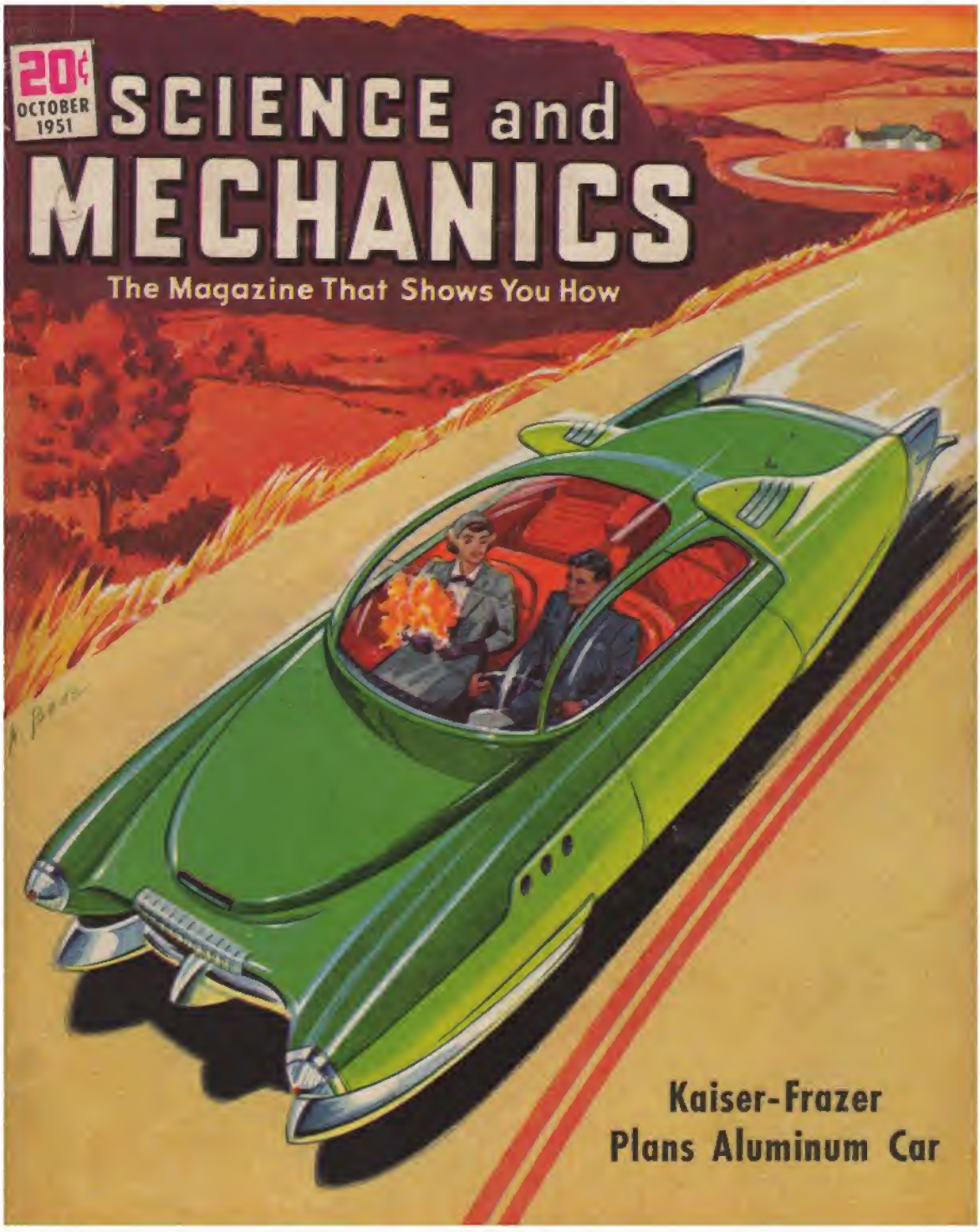
CONSIDER what such a machine will mean to the man who works in the city. He could live several miles farther away from the heart of the city and spend less time getting to and from work. By flying, more speed could be made with a greater degree of safety than now is possible on the streets and highways.

It would not take a great stretch of imagination to foresee municipalities regulating the height of buildings to uniformity, the streets to be bridged, in order to form one vast landing-field in the center of each city for flying machines. The landing-field or tops of the buildings could be connected with the street level by elevators so that a machine alighting could descend to the street and be driven about as an automobile. At the end of the business day it would be driven back to the elevator and lifted to the roof to take off for the homeward flight.

Rickenbacker as an automobile speed king

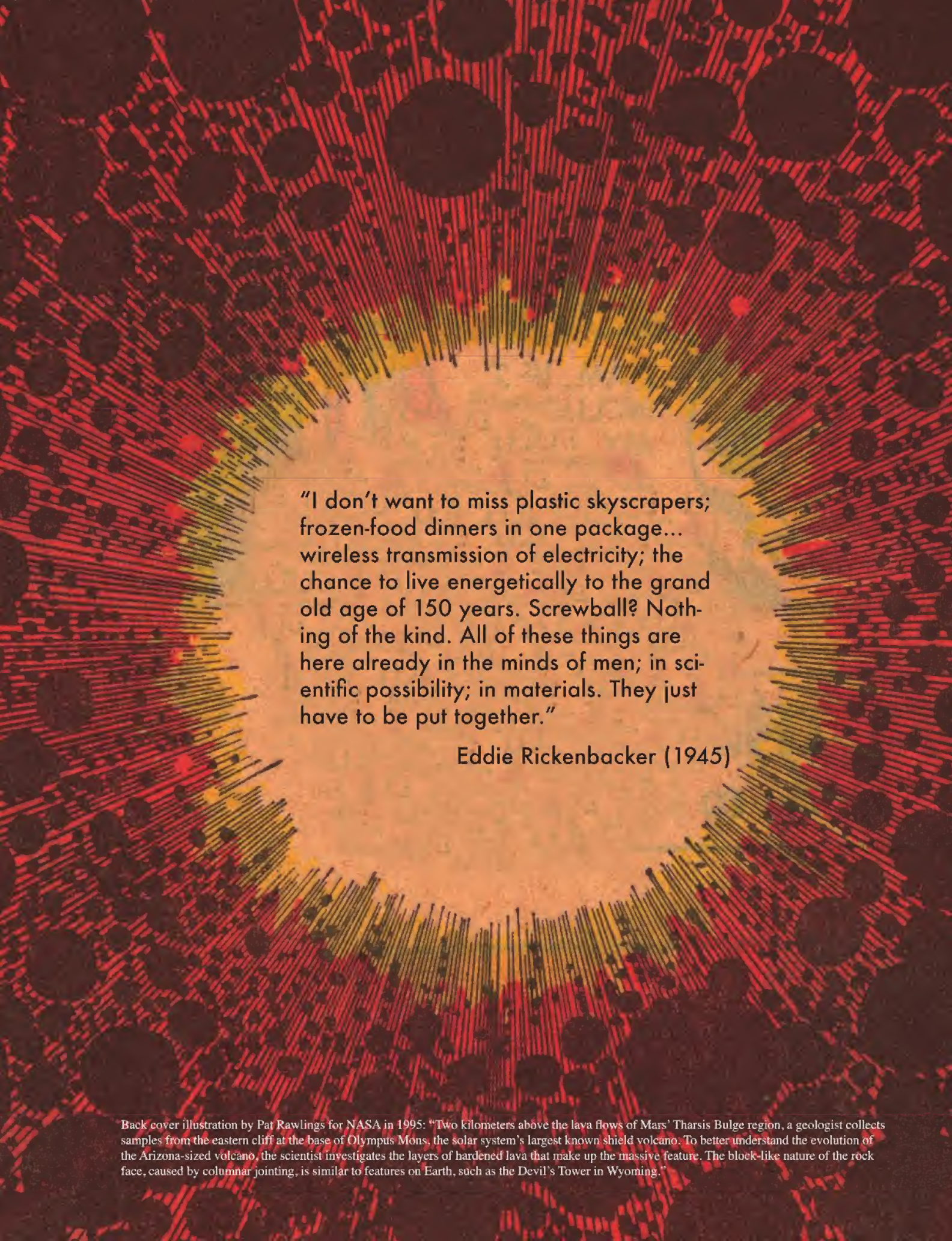
Such a forecast is more than pure fancy. It is founded on present progress in automobile and airplane design.

NEXT month: A dramatic story of a young immigrant who, by his own mechanical efforts, found a way to travel on land faster than any other human being. His life story is a thrilling romance of mechanics. You can't afford to miss this unusual personal story of the swift progress of applied science.



Herb Weissenger, Kaiser-Frazer chief stylist, shows some experimental car designs which disregard the traditional idea of acknowledging the nose of the vehicle. His theory is that the fenders of the future car may predominate in design to given an illustration of greater length and an airplane-cabin type passenger compartment. In Weissenger's light-weight car of the future, stout steel bumpers would give extra protection. There are many restrictions on using so much glass immediately, and recognizing this, Weissinger suggests a power-controlled plastic canopy which could shut out the sun's rays when desired.

-October, 1951 ***Science and Mechanics***



Back cover illustration by Pat Rawlings for NASA in 1995: "Two kilometers above the lava flows of Mars' Tharsis Bulge region, a geologist collects samples from the eastern cliff at the base of Olympus Mons, the solar system's largest known shield volcano. To better understand the evolution of the Arizona-sized volcano, the scientist investigates the layers of hardened lava that make up the massive feature. The block-like nature of the rock face, caused by columnar jointing, is similar to features on Earth, such as the Devil's Tower in Wyoming."